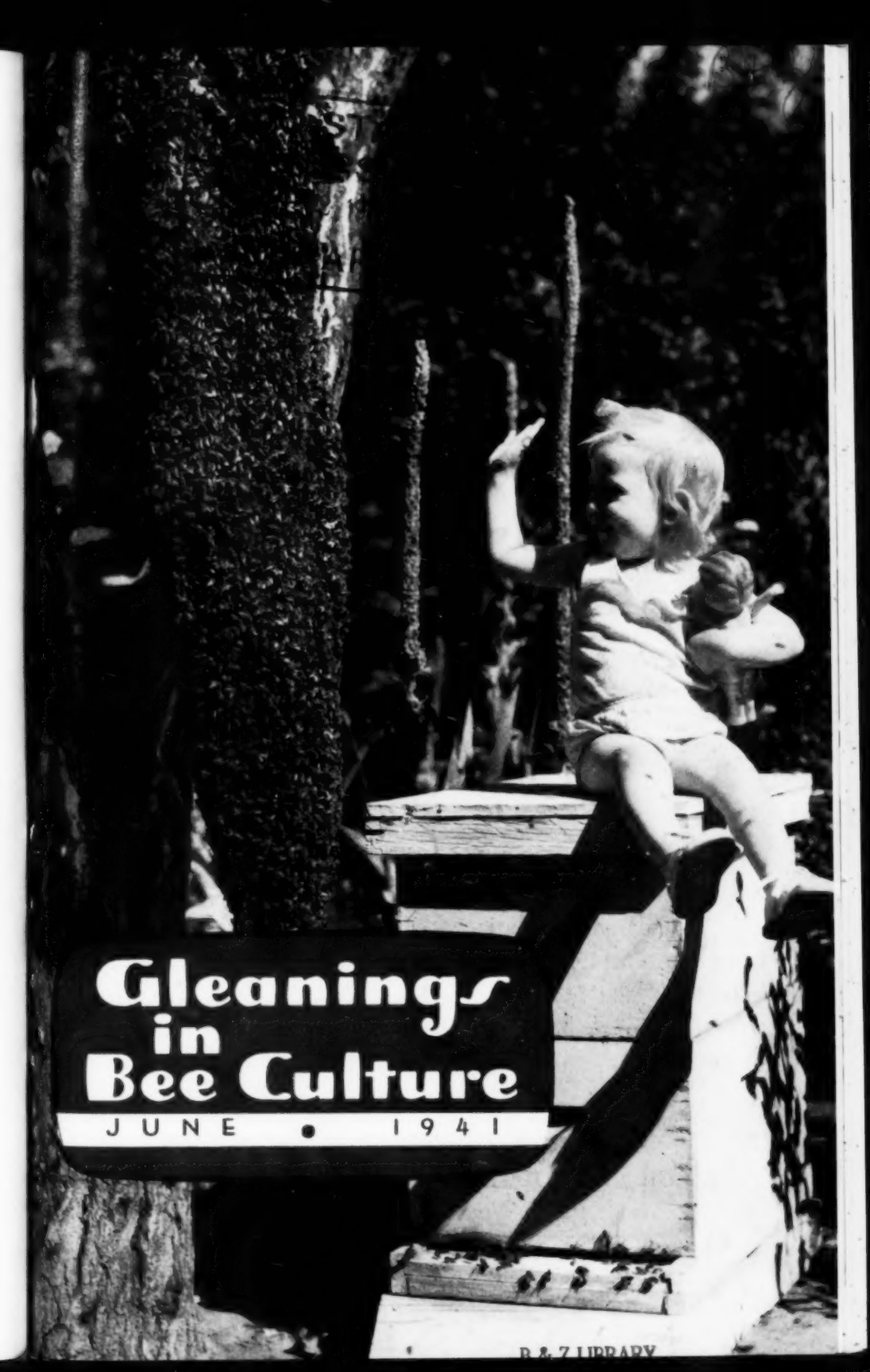

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Gleanings in Bee Culture

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The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (last half of April).

California Points: Southern California—The weather has recently been mostly fair, though unfavorable for bees part of the time because of windy, cloudy days, but earlier rainfall and cool and windy days apparently sharply curtailed early nectar gathering. Near the Mexican border reports indicate losses from starvation of 10 to 30 percent, the higher losses being where bad roads made it difficult to get to the colonies. In the Orange Belt, during the good days on which bees could work to advantage, however, they have been busy, bringing in 10 to 12 pounds of nectar on the best days. Swarming has been serious and in some yards among the heaviest of record. Some colonies have swarmed 3 to 4 times. Early indications are for half to two-thirds of a crop of Orange honey. Pollen has been abundant. Sage looks well in most areas, though the sage weevil is more serious than usual. Some beekeepers report that the excess rain has turned sage yellow, and that a failure from black sage is in prospect in their districts. Though some colonies in mountain locations are in poor shape, beekeepers in general are looking forward to a good flow from white and purple sage if the weather warms up. Buckwheat looks well, and a late buckwheat flow of considerable volume is expected. Bees have been working on wild alfalfa, wild mustard, deerweed and other wild flowers. It now appears, however, that early prospects for a good total crop in Southern California are not likely to materialize. Demand for honey has been rather slow, with the market generally steady on practically all grades.

SUMMARY—Temperatures during the first week of the period were excessively warm throughout the East and sub-normal in the West, but during the latter week the situation was nearly reversed. Rainfall was heavy in parts of Texas and the Mississippi Valley, but much of the East, including the Northeast and the Upper Ohio Valley, still needs rain, as does the Pacific Northwest. Colonies in many commercial areas have been able to build up well and are stronger than usual as a result of the unexpectedly early bloom of fruit trees and other early nectar sources in the East. Although winter losses in commercial yards have been light almost everywhere and substantially below the heavy losses in some sections last year, the bees generally

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came through the winter light in stores and feeding was necessary in many yards if the colonies were to survive. The late season in the Southeast has so delayed package bee shippers and queen breeders that shipments north have been later than usual. Unfavorable weather has cut short the anticipated good crop of Orange honey in Southern California, and prospects for the Sage flow are now uncertain. Over most of the country nectar-bearing plants are now in at least average condition, and in some areas they are in the best shape in years. Throughout the White Clover Belt, however, more rain will be needed if there is to be a good nectar flow from clovers. Present prospects are still for an average or better honey crop this season if weather conditions permit bees to gather the nectar when it becomes available.

Stocks of honey throughout the country have been lessening steadily, and the anticipated surplus in the West does not loom as large as seemed likely a few weeks ago. Considerable honey darker than White appears still available in the Mountain States, in Arizona, and in some of the California valleys, but stocks of White honey are apparently everywhere light. Some Eastern beekeepers are endeavoring to purchase Western honey to take care of their customers until new crop honey is available. Prices show little change. There appears to be an undercurrent of strength to the wholesale market, but the effect of this has been lessened by the low prices at which honey has been selling at some retail stores. Most beekeepers, however, are optimistically looking forward to a slightly stronger market during the coming season.

Monthly Report of Honey Producers

Early in May we sent the following questions to honey producers: 1. What is your estimate revised to date, of the amount of last year's honey crop not yet sold in your locality? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) Comb honey, Fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5 lb. pails, or other retail packages in terms of 5 lb. pails? (b) comb honey, Fancy and No. 1, per case. 4. What is the retail price to consumers in your locality of (a) extracted honey in 5 lb. pails, or other retail packages in terms of 5 lb. pails? (b) Comb honey, Fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair, or rapid. 6. What is the condition of the honey plants at this time in your locality, as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of the bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter and spring loss to date (if any) in your locality? The answers received are tabulated as follows:

Dated May	State.	Name.	1. 1940 hold-over.	2. Large lots. Ex.	2. Comb.	3. To Grocers. Ex.	3. Cb.	4. To Consumers. Ex.	4. Cb.	5. Movement.	6. Cond. honey plants.	7. Cond. of colo.	8. Wint.-Spring loss.
8	B. C.	(A. W. Finlay)	0	.10½		.70		.90		Fair	100	130	10
8	S-Calif.	(L. L. Andrews)	0					.50	.19	Fair	150	75	10
8	SE-Colo.	(Otis E. Adcock)	40			.36	3.00	.45	.17	Slow	100	100	3
5	E-Conn.	(Allen Latham)	10			.75	5.00	1.00	.27	Slow	90	100	12
5	S-Fla.	(C. C. Cook)		.04		.35		.50		Fair	100	100	10
5	C-Fla.	(Harry Hewitt)	0			.50		.65		Rapid	100	100	2
5	SE-Ga.	(J. J. Wilder)	0	.06		.50		.60		Rapid	85	60	20
8	NC-Ills.	(A. L. Kildow)	10	.04½	2.00	.40	2.50	.50	.12	Fair	95	100	5
12	S-Ills.	(Carl E. Killion)	2	.06		.43		.60	.14	Fair	100	125	5
5	NC-Ind.	(T. C. Johnson)	5			.40	3.00	.50	.18	Fair	90	100	4
11	NW-Ind.	(E. S. Miller)	5			.45	3.00	.65	.15	Slow	90	100	8
11	W-Iowa	(E. G. Brown)	0							Fair	110	115	8
11	N-Maine	(O. B. Griffin)	5				4.50		.30	Slow	100	90	25
6	C-Md.	(S. G. Crocker, Jr.)	5			.60	4.00	.75	.20	Slow	80	100	20
7	N-Mich.	(Ira D. Bartlett)	7			.40	3.00	.49	.17	Fair	125	100	5
9	S-Mich.	(Floyd Markham)	10	.05½		.45		.65		Fair	100	100	5
11	C-Mich.	(E. D. Townsend)	0								80	80	15
12	E-Minn.	(Floyd W. Ray)	0	.05		.37		.47		Slow	100	110	6
13	W-Minn.	(B. L. Morehouse)	8	.05		.42		.49		Fair	95	75	15
6	NE-Minn.	(L. A. Syverud)	10			.35	2.40	.39	.13	Fair			10
8	W-N. M.	(C. A. Baltzley)	10	.05		.38		.60		Slow	100	90	10
13	NW-N. Y.	(Geo. B. Howe)	8	.06		.45		.65	.20	Fair	90	100	5
5	C-N. Y.	(F. W. Lesser)	10	.06½						Slow	80	100	3
5	NW-N. C.	(C. S. Baumgarner)	0			.75		.90	.25	Slow	100	90	10
8	SE-N. C.	(W. J. Martin)	0	.06		.60		.65		Fair	100	90	10
6	C-Ohio	(R. D. Hiatt)	0	.06				.63		Fair	70	110	5
10	NC-Okla.	(C. F. Stiles)	5			.40		.60	.18	Fair	100	95	
6	C-Penn.	(Harry Beaver)	15			.50		.60		Slow	100	75	12
6	SE-Penn.	(D. C. Gilham)	15			.70	4.25	1.00	.25	Slow	90	100	50
8	W-S. C.	(E. S. Prevost)						.18		Fair	100	98	
9	SE-S. D.	(J. F. Norgren)	5	.04½		.35		.39		Slow	110	90	20
9	C-Tenn.	(J. M. Buchanan)	0					.75		Slow	100	100	1
13	E-Tenn.	(W. L. Walling)	0					.85		Slow	90	95	2
6	C-Texas	(T. A. Bowden)	4			.45		.55		Fair	90	90	2
5	S-Texas	(J. N. Mayes)	5	.04						Slow			15
7	S-Texas	(H. B. Parks)	0			.45		.55		Fair	100	100	2
5	N-Utah	(W. H. Hendricks)	10			.42		.45		Fair	110	95	7
8	W-Vt.	(Phillip Crane)	0			.65		.82	.25			110	2
12	SE-Wisc.	(N. E. France)		.04½		.30		.45	.15	Slow		60	2
5	N-Wyo.	(Earl C. Reed)	5	.04½		.33		.40	.13	Slow	75	100	5

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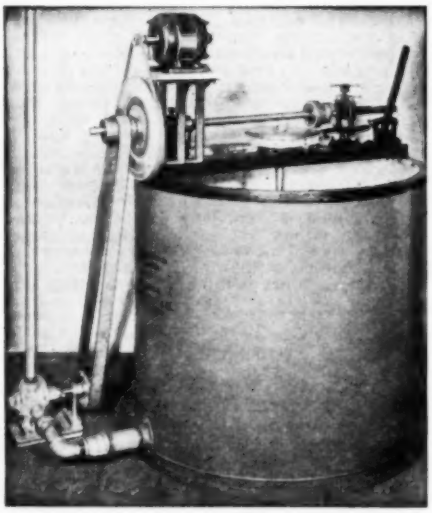

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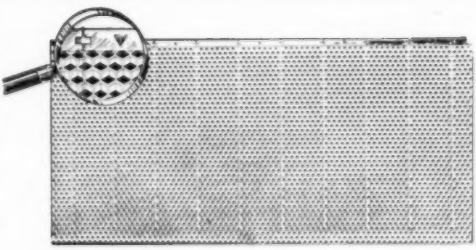

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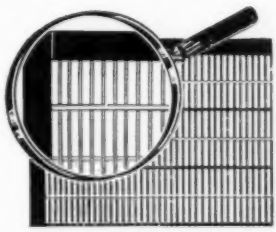

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Vol. 69
No. 6

Gleanings
in Bee Culture

June
1941

The Research Work of the U. S. Bee Culture Laboratory at Madison, Wisconsin

By E. R. Root

The material and the photographs here presented are based on several interviews with the workers at the U. S. Bee Culture Laboratory at Madison, Wis. We wish every honey producer in the country could see what we have seen here first hand. It is a revelation of some real worthwhile work which we hope, in spite of the dwindling price of honey, will help the beekeeper to make a real profit. As everyone can not get to Madison we present photos taken by the writer at the U. S. apiaries at Madison, After reading the article one will get a fair idea, we hope, of what Uncle Sam is doing for bee culture. As will be seen, the work covers a wide range of inquiry covering food, pollen, package bees, supersedure, and introducing.

Remember this is only one station under Mr. James I. Hambleton. We feel sure our readers will agree that the appropriation for bee culture is well spent.

Fig. 1.
Dr. C. L. Farrar.
In charge of the work at Madison.

The North Central States Bee Culture Field Laboratory, U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine, was established in April, 1938, at Madison, Wisconsin, in cooperation with the University of Wisconsin to conduct investigation and disseminate information on beekeeping problems. In establishing the laboratory, a committee appointed by the American Honey Producers' League and consisting of W. E. Anderson, State Entomologist of Louisiana, Prof. H. F. Wilson, University of Wisconsin, and C. A. Reese, State Apiarist of Ohio, secured contributions of beekeeping equipment and package bees from supply manufacturers and beekeepers.

The Personnel

Dr. C. L. Farrar, Apiculturist, was transferred from the Intermountain States Bee Culture Laboratory, Laramie, Wyoming, to be in charge of the laboratory.

Fig. 2.—C. L. Farrar discussing the work of the Bee Culture Laboratory at the Wisconsin Beekeepers' Association meeting July, 1939. The meeting was held at the University Hill Farm, and in the Laboratory's apiaries.

Dr. C. W. Schaefer, Instructor in Economic Entomology, is jointly employed by the Government and the University of Wisconsin.

Dr. Harry H. Laidlaw, Jr., Field Aid, has been employed for three months during the summers to assist with the research program.

Miller Memorial Library

Prof. H. F. Wilson is the official custodian of the library, but the Bee Culture Laboratory has accepted co-custody with the University of Wisconsin to maintain, expand, and cat-

Fig. 3.—Wisconsin beekeepers visiting one of the Laboratory's apiaries where different lines of stock are tested. Small apiaries of 30 to 45 colonies are located in brush-type locations. Yard management is difficult in these locations but they give semi-isolation to each colony to prevent drifting. It is important in testing stock that the performance of each colony is due to the work of its own bees and queen.

Fig. 4.—Carl Schaefer, C. L. Farrar, and Harry Laidlaw standing by one of the Laboratory's two-queen colonies at the Hill Farm Apiary.

Fig. 5.—Harry Laidlaw and Carl Schaefer standing behind a two-queen colony broken down to show the inside organization of the hive. From left to right we have the two top supers, a queen excluder, two brood chambers for the upper queen, a queen excluder, two supers which separate the two brood-nests, a queen excluder, and the lower brood-nest. The upper two-queen excluders are not essential but simplify the management. Very little honey is stored in the lower brood-nest where one chamber is ample, providing the two supers between the lower and upper brood nest are not left here for finishing. The top supers are removed when finished and the two lower supers placed on top with empties placed above the lower brood-nest. The two upper brood chambers must be reversed at each manipulation to force the bees to move honey into the supers, otherwise the upper queen will become honey bound. The full bottom-board entrance is open and all three brood chambers have one-inch auger holes in front. Full strength two-queen colonies will contain about 30 pounds of bees and approximately 75 percent of the flight activity will be through the two auger holes in the upper brood-nest. Landing boards have not been found necessary.

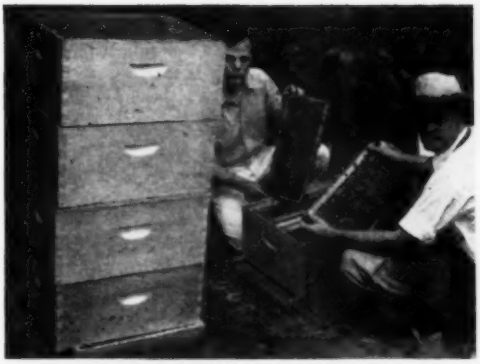

Fig. 6.—Examining the lower brood-nest of a two-queen colony. If both brood-nests contain good queens, no attention need be given to the lower brood-nest. Approximately 4 weeks before the close of the honey flow, all excluders are removed and the upper brood chambers set down on the lower one. In practically all cases the upper queen will survive uniting. The double populations build up larger pollen reserves for winter because they have the brood of only one queen after uniting. The program of the North Central States Laboratory is concerned with problems of honey production, pollen, queens, and wintering.

alog the beekeeping literature. The library now contains 3500 to 4000 books and pamphlets and a similar number of serial volumes of beekeeping periodicals. The Miller Memorial Library is particularly rich in early historical literature.

Miss Ethel L. Coon, Senior Library Assistant in the Division of Bee Culture, spent a month both in 1939 and 1940 classifying the books and assigning shelf code numbers, and the labels have been added by the University.

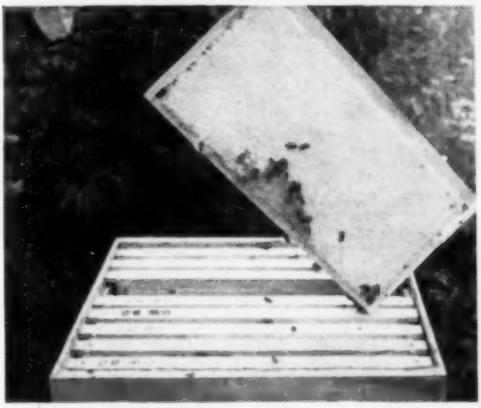

Fig. 7 shows a frame of honey removed from a finished super.

Apicultural Instruction

Under the memorandum of agreement between the Bureau and the University of Wisconsin, the University is supporting the research program both by contributing personnel and operating funds, while the laboratory staff in turn handles the

Fig. 8 shows a tray of pollen removed from a colony equipped with a pollen trap. From 20 to 50 pounds of dry pollen have been taken from good colonies. Twenty to 30 pounds is a good yield in the Madison area. Pollen removed from the traps will lose 20 to 30 percent in weight upon drying.

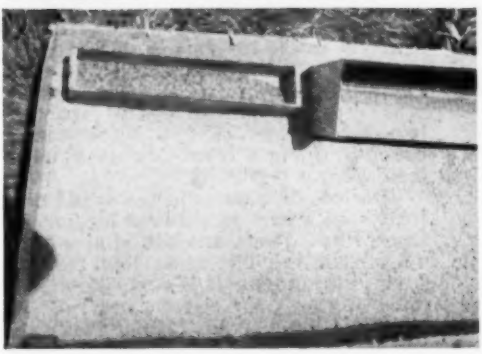

Fig. 9.—A drying tray containing about 30 pounds of pollen. A pollen tray removed from a colony containing about 1 pound of pollen and an extra pollen trap are resting in the drying tray. The bees scrape the pollen pellets from their legs as they pass through two 5-mesh grids. The pellets drop through an 8-mesh cover over the pollen tray which prevents the bees entering the colony except through the grids. The double grid made by folding the 5-mesh hardware cloth so the two planes are about ½-inch apart runs the full width of the entrance and is about 2 inches high.

XUM

Fig. 10.—A colony wintered out of doors feeding on cakes of soybean flour supplemented with 25 percent pollen, early in March. Note the bees covering the entire upper set of combs.

Fig. 11.—A portrait of a good queen. Colored portrait pictures one taken of all queens used in the stock testing program. Great differences are found in the size and body conformation of queens representing lines of stock. A study is being made of these characteristics as they affect performance.

beekeeping instruction in the University. At present, a one-semester course in Introductory Beekeeping is offered to University students which consists of 31 hours of lectures and 16 2-hour laboratory periods. A 5-weeks beekeeping short course, consisting of 15 lectures and 10 2-hour laboratory periods, is offered to 2-year short course students. A total of 20 to 30 students have availed themselves of these courses each year.

Testing Lines of Stock

Investigation on the causes of queen supersedure begun in 1935 have continued to indicate that breeding stock is a major factor contributing to queen losses. Stock obtained from 14 shippers in 1938 varied in average production from 21 to 162 pounds; stock from 15 shippers in 1939 varied in average production from 55 to 160; and stock from 6 sources in 1940 varied in average production from 23 to 144 pounds. In 1940 the number of sources tested was reduced and progeny from 5 breeder queens of two lines and 2 breeder queens from one line were tested for variability.

The loss of queens in the great majority of cases has been higher in those lines where the brood and honey production has been low for the surviving queens. It is surprising that more of the poor queens are not superseded. The strain relationship between several poor lines has been established, and lines producing crops above average show their superiority each year.

The quantity and quality of brood produced by inferior lines is much below that of good stock. There is some evidence that the size and body conformation of queens may be correlated with the queen's capacity to produce high yielding colonies. The laboratory is studying these factors by taking color portraits of all test queens on Kodachrome film.

Publications—Cir. E-427 Bureau of Entomology and Plant Quarantine, April, 1938, "New Recommendations for the Installation of Package Bees Using the Spray and Direct-Release Method" outlines a procedure for reducing the time for initial egg laying by package queens approximately 3½ days below the older method where the bees release the queen. The new method also reduces queen losses during introduction and saves both labor and equipment in getting the package colonies established.

Cir. E-473 Bureau of Entomology and Plant Quarantine, May, 1939. "A Preliminary Report on the Influence of Stock on Supersedure, or Loss, of Queen Bees" gives a detailed analysis of the stock problem. A second or progress report has been prepared on the same subject for publi-

cation, but this has not yet been released.

Investigations on the Brood-rearing Value of Different Types of Pollen, Pollen Substitutes and Supplements

For the past 8 years, the lack of adequate pollen has been recognized as a major factor limiting colony development. The problem is acute both in over-wintering colonies and in developing new colonies from package bees in time for the honey flow. Recent investigations have shown that where pollen is supplemented by 75% soy-bean flour and mixed with sugar syrup to form a moist dough-like cake the number of bees for a given amount of pollen can be increased approximately six times. For example, 1 pound of pollen produces 4500 to 5000 bees, while ¼ pound of pollen plus ¾ pound of soy-bean flour produces 7000 to 7500 bees. Soy-bean flour contains nutrients which the bees can use in feeding brood although lacking in some essential food elements found in natural pollen.

Feeding tests using different types, and combinations of food alone and with pollen are carried out successfully in small cheese cloth compartments in the greenhouse during the winter months. These results are then checked in over-wintered colonies and packages established the first week in March when snow and zero temperatures have occurred. The results obtained under greenhouse conditions coincide closely with the colonies out of doors, before new pollen is available.

A pollen trap has been designed which scrapes the pollen from the legs of the bees as they enter the hive. One good colony will yield from 20 to 40 pounds of pollen which is dried for the purpose of storage and then mixed with soy-bean flour for feeding during critical periods in colony development. Estimates indicate that the pollen collected from one colony will meet the critical needs of approximately 50 colonies if mixed with soy-bean flour. The colony from which pollen is trapped may produce some brood, but it will not yield a full honey crop.

Publication—A manuscript, "The Use of Pollen Traps and Pollen Supplements in Developing Honeybee Colonies" has been submitted to the Bureau for publication in the E series in the near future.

Over-wintered Colonies Versus Package Bees

Since some commercial beekeepers are practicing killing their colonies, data are needed on the economic aspects of this practice for correlation with studies on requirements for efficient wintering and package colony development. Where pollen reserves are inadequate, there is a theoretical justification for killing colonies.

The laboratory has made very little progress on this project because of the great variation in the quality of stock making up its colonies which remain at the end of the stock testing season. From one to 200 colonies have been over-wintered each year after determining the size of fall population, the amount of stores, and pollen reserves. A portion of the colonies have been packed, others wrapped in tar paper, and others left in unprotected hives. Those colonies having 8-10 pounds of bees (30,000), adequate honey, and large pollen reserves are definitely ahead of good package colonies, regardless of the presence or absence of winter protection. Indications are that the decision, to winter colonies or to use package bees, will rest on the pollen problem and the quality of stock available.

Beekeepers who have good stock and who can satisfy optimum winter requirements cannot afford to sacrifice their colonies in the fall. Beekeepers who are short on pollen can often build up some pollen reserves by dequeening colonies prior to killing them, and these reserves will give package colonies of good stock a real advantage over wintered colonies lacking in reserve pollen.

In 1939-40 the laboratory colonies went into the winter with 50 to 60 per cent of normal populations and without appreciable pollen reserves. Pollen and soy-bean flour cakes were fed late in February, through March and early April. These colonies replaced their over-wintering bees in spite of the severe cold weather. An average of 3½ pounds of young bees was taken from them to make packages during the last week in April. The use of trapped pollen supplemented with soy-bean flour gives promise of minimizing the problem of pollen shortages. This method of aiding over-wintering colonies should make the practice of killing good colonies much less attractive. Poor col-

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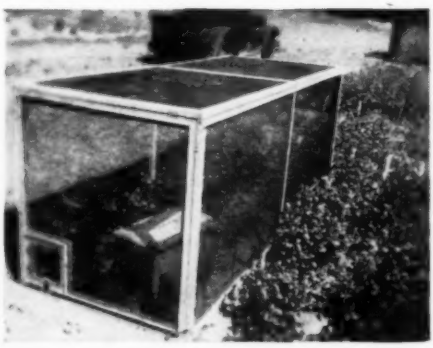


Figs. 12 and 13.—Red clover breeding plots maintained cooperatively by the University of Wisconsin and the Bureau of Plant Industry. Dr. J. L. Allison is in charge of a breeding program to obtain strains of red clover resistant to anthracnose and wilt. The Bee Culture Laboratory is cooperating by furnishing nucleus colonies to pollinate the selected strains of clover. Twenty nuclei were used during 1940 and excellent seed set was obtained in the cages.

onies certainly can be destroyed or united profitably in the fall, replacing them with good packages in the spring.

A Comparison of Single-queen Versus Two-queen Colony Management

The relationship between average commercial production and present honey prices offers too little encouragement to honey producers. The returns obtained from their high producing colonies in any apiary usually exceed the average yields two to three times and averages approaching these maximum yields were profitable. This wide spread between the maximum and average yield is probably due to several factors including the productivity of queens, pollen reserves, honey reserves and management affecting the time of developing maximum populations in relation to the honey flow, as well as swarming.

Tests made at the Laramie Station indicate that the use of two-queen colonies offers a positive method of lowering costs through an increase in the colony's production efficiency. Two queens increase the colony population more rapidly before the honey flow and, when united back to a single queen status, larger pollen reserves are built up to insure the wintering of strong colonies for the next year.

Tests made at Madison in 1938 resulted in average yields of 298 pounds surplus for two-queen colonies and 76 pounds for single-queen colonies. In 1939 and 1940 the average advantage of two-queen colonies over single-queen colonies was 268 to 148 and 247 to 101 pounds, respectively.

The potentialities of two-queen management are better expressed by the maximum yields of 430, 436, and 404 pounds respectively in 1938 to 1940 against 130, 275, and 172 pounds respectively for single queen colonies. Through greater control over the time factor in building colony population by using good queens and pollen supplemented with soy-bean flour, both the averages for two queen and single-queen colonies can be increased.

Publication—"Two-Queen Versus Single-Queen Colonies" Gleanings in Bee Culture, Oct. 1936.

Testing Methods of Queen Introduction

Positive methods of queen introduction have not been standardized and losses from different commercial

Fig. 14. E. L. Chambers, State Entomologist, who supervises the Wisconsin Apiary inspection service.

practices probably average 20 per cent for queens shipped by mail, i.e., not laying when introduced to full colonies. It is true that 10 or even 50 queens introduced by any particular method may be successfully introduced, but half of the next group may be lost. Tests made by Farrar in commercial apiaries in the mountain region showed that introduction after the close of brood-rearing resulted in very small losses but failing queens need to be replaced at all times of year under a variety of conditions.

The laboratory is forced to make the queen introduction project incidental to the needs of the other lines of work. They are now applying the spray-and-direct release method of handling package queens to their requeening practice. Two major factors appear to affect the acceptance of caged non-laying queens. First, the time of initial egg laying after the queen is released and second, the behavior of the bees in the colony; queens shipped by mail require more time to begin laying than those shipped in packages. To offset these two variables, they introduce queens received by mail into small package nuclei ½ to ¾ pounds of bees by the spray method. The laying queens from nuclei are then sprayed directly into producing colonies requiring a change in queens. The old queen is first removed, and the bees on the combs are rapidly sprayed with sugar syrup before the young laying queen is added. The method has proved 100 per cent successful for all conditions, providing there are no virgins or queen cells present. The presence of the old queen and a virgin or even a young laying queen occurs quite frequently.

The nucleus plan of providing young laying queens makes it possible to absorb queen losses in nonproductive units, inferior queens can be eliminated before they are given to producing colonies, and young laying queens can be held in reserve to make replacement whenever a producing colony shows signs of having a failing queen. The nucleus can be combined with the colony requeened or given either a ripe cell or new queen. It is easier to introduce a nonlaying queen to a nucleus or small colony by any of the usual methods.

Summary of Activities

Work projects carried by the Laboratory are divided into two groups: Information service, and management of bees for production.

Under information service, the laboratory handles beekeeping correspondence and two line projects:

1. Custody and cataloging of the Miller Memorial Beekeeping Library;

2. Apicultural instruction at the University of Wisconsin.

There are two principal lines of work under the work project, management of bees for production:

1. Testing lines of stock for colony characteristics bearing on supersedure;

2. Investigations on the brood-rearing value of differences in types of pollen, pollen substitutes, and pollen supplements.

Three other line projects are receiving some attention, but a lack of sufficient help keeps these subordinate. These are:

3. Investigations on the economic aspects of wintering versus killing colonies and replacing with package bees;

4. A comparison of single queen versus two queen colony management;

5. Testing methods of queen introduction.

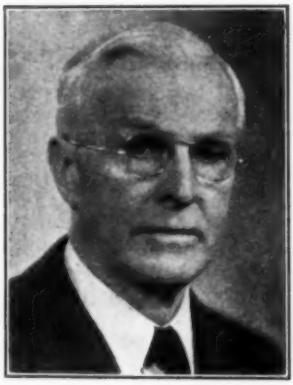
Approximately 250 colonies of bees are now being used in the research program.

L. C. Gardner Comes to Mell's Rescue

It is gratifying indeed to have as eminent authority as Mr. Lloyd C. Gardner give us his definite proof that bees do move eggs. See page 227, April issue of Gleanings. I have been made the goat from all sides since I made the same statement some time ago. He laughs best, who laughs last. It is now my turn to rejoice.—Mell Pritchard, Medina, Ohio.

Honey for Controlling Insects

I have developed a combination of steam cylinder oil and honey to control insects in the vegetable greenhouses here at the Ohio Agricultural Experiment Station which especially gives us good control of red spider, a very troublesome and bad insect to control. Please see Farm Journal, August, 1940, issue, page 22.—Grover Pfister, Wooster, Ohio.



James W. Bain

Queen-rearing

By James W. Bain

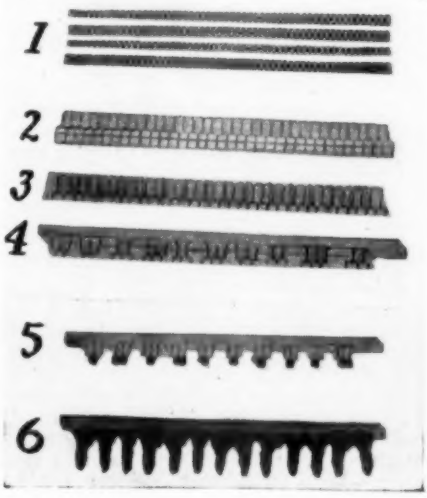
A System Designed to Meet the Requirements of the Apiarist Wishing to Rear His Own Queens

Step 1: First select one of the strongest two-story hives in the yard having at least eight combs of brood in the lower story and five to seven in the upper story. For clarity we will designate the lower story as (A) and the upper story as (B). Place a queen excluder between the hive bodies A and B confining the queen to compartment A. After the brood is all sealed in compartment B, you are now ready to begin queen-rearing.

Step 2: Five days after placing the queen excluder in position on the two-story hive as mentioned in Step 1, select a used, clean, empty brood comb and place it in the center of the brood department in any colony from which you wish to breed. Four days later you should have an abundance of larvae from one to eighteen hours old. Any of these larvae will produce the best of queens.

Step 3: Next, between 10 A. M. and noon move the two-story hive A and B a few feet to one side, facing it in the opposite direction from its former position. Then place a bottom-board on the parent stand and remove hive body B, place it on the bottom-board, then cover and reduce the entrances of both stories A and B to ⅞ x 6". Next examine the brood carefully in hive B, destroying all queen cells should there be any. Remove one frame from body B leaving a vacant space near the center between two frames of brood to receive the divisions one or two hours later for acceptance.

Step 4: One hour later remove the frame previously placed in the breeding colony which by this time should contain an abundance of larvae the proper age for best results. Brush the bees from the comb, but do not shake the comb. Now wrap it in a cloth to protect it from damage by sun, wind, or cool atmosphere, then carry the frame to a warm room and with a thin sharp knife cut strips of comb containing larvae, leaving one row of cells unharmed. See Fig. 1. Next lay the strips on their sides and by using a straight edge and a sharp knife reduce the depth of the cells one half on one side only. See Fig. 2. Next cut the strips crosswise leaving one or two cells containing larvae on each division. See Fig. 3. Fasten the divisions to the cell bar by dipping a small brush into hot beeswax. Place the brush on the cell bar and at the same time place a division on the brush, withdraw the brush quickly pressing the division down gently. The wax will cool instantly sealing the division permanently. Place the divisions



crosswise on the bar ½ inch apart using fifteen to eighteen to the bar. As many as four bars can be given the bees in compartment B at one time for acceptance. The bars with the divisions all attached (see Fig. 4) are now ready to place in a frame designed to hold them. Now insert the frame containing the bars in the vacancy previously provided in hive B. One should have everything ready before beginning the work in order to hasten it as quickly as possible. The larvae must be well protected while carrying to and from the hive, otherwise the queens will be darker in color.

Step 5: Twenty-four hours after placing the divisions in hive B for acceptance set hive B to one side and in its place return hive A with the queen back to its original position. Remove the queen and one frame of bees from compartment A, and in this vacancy place the bar of accepted cells from compartment B; brush off the bees and if more than one cell has been started on any one division (see Fig. 5), destroy all but one, then place the bar of cells in the vacancy made by the removal of the queen from compartment A. Now place the frame of bees and queen in compartment B and restore it to its former location separating A and B with a queen excluder. You now have the queen in the upper compartment B and the cells in the lower compartment A. If more than one bar of cells is given at one time to the queenless bees for acceptance, the other bars must be distributed to other colonies, placing them in the lower stories in the brood compartment, at the same time confining the queens to the upper stores by an excluder.

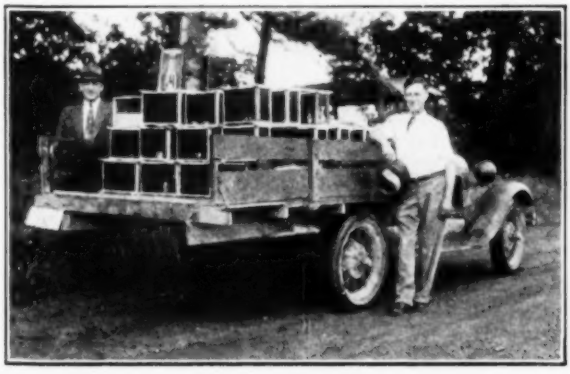
Step 6: If nectar and pollen are not being gathered freely, one should feed the cell-building colonies heavily for three days, using for feed either sugar or extracted honey mixed with water in equal parts by volume. We use a five or ten pound tin honey pail for a feeder. We make about thirty perforations in the lid. A frame nail makes holes of the right size. Invert the can over the hole in the inner cover at the top of the hive. Keep the feeder well supplied with syrup all the time, using care not to mix freshly prepared syrup with that which has been previously prepared.

Step 7: Nine days after placing the divisions in compartment B for acceptance, the cells must be distributed to nuclei or colonies that have been queenless two or more days.

Introducing Cells

Step 8: Remove the frame with cells from the hive, drop a cloth over the frame, covering both sides. This along with the bees clustered on the frame will prevent the chilling of the cells while being carried for introduction, as the bees will not desert the cells. Hold the frame with cells in its natural position while carrying and cutting off the cells. It is best to have an attendant to carry the frame. To introduce a cell, lift the cloth at one end and with a sharp pocket knife release one of the cells, remove a frame of brood from the nuclei, then gently press the cell on the brood and put the frame back in the hive. Four days later its safe to check for results. If virgins are found, ten days later they should be laying.

Marion, Ohio.



Packages to be Shipped

A truckload of packages ready for shipment. Mr. H. C. Short and the late Tommy Atchison appear in the picture.

Pioneer Beekeepers, Three

By Harriet Geithmann

Those were the good old pioneering days of 1920-1921 when two valiant urbanites, young Seattle women, Miss Elizabeth Dickerson, an instructor in physical education, and her friend, Miss Nell Pearce, a trained nurse, ventured forth into the wilderness bordering the present Duvall Highway which meanders through the Valley of the Sammamish. They invested in a tract of ten acres of wilderness dotted with somber Douglas firs, western red cedar, and vine maples.

In those pioneering days the would-be beekeepers found no improvements to aid their progress, no paving, no electricity, no water, no telephone, no rural delivery, and no this or that boon of civilization to which they were accustomed. Therefore, it took pure and unadulterated grit with a capital G to master their rural circumstances and to make the grade.

A decade later, these frontier women were still carving their career in beekeeping out of the wilderness. At this time in 1931 Miss Pearce's sister, Pearl, also a trained nurse, joined the pioneers and then they were three.

Today, two decades later, these same pioneers are still pushing out their horizons far beyond the pinnacles of the Olympics and the Cascades. With a business that extends not only from the paved highway which swings past their front door to the last beehive on the gentle knoll in the rear flanked by evergreens, and even unto the ends of the western hemisphere, these pioneers are just as busy as their own bees. The year of 1940 has brought many improvements over 1921. Today, four of their ten acres have been fenced and one acre is under cultivation. Among the stumps are 100 or more hives of Caucasian bees which have been hauled down but recently from the neighborhood of Sultan in the forested foothills of the Cascades near Stevens Pass. The bees have been moved down to spend the winter at home within the bounds of civilization where black bears are not so apt to come plundering for golden honey.

These beekeepers are interested in doing a quality business only. Therefore, they produce only quality sweets such as honey and all kinds of high-grade specialties in jams made from gooseberries, black currants, wild blackberries, ground cherries, and marmalades. Their honey, put up in jars and pails, is a delectable sweet distilled through the mysterious alchemy of their Caucasian bees

Right:—Miss Elizabeth Dickerson among her bee hives where her Caucasian bees are at home.

Below:—Home of the Misses Elizabeth Dickerson and Nell Pearce at their bee farm near Woodinville, Wash.

Left:—A corner of the honey shop on the Duvall Highway.

Above:—The honey shop itself.

from the nectar of the fireweed in summer, the vine maples in the spring, plus all the spring flowers including those from berries and clover. They also make a specialty of Christmas packages including cedar baskets and boxes well packed with their delicious products. Hand-dipped fragrant candles are also made from their own beeswax.

These various articles are marketed far and wide from Honolulu to Gotham, from far-flung Alaska to the Mexican border. Practically every state in the Union enjoys sweets from the Pearce and Dickerson Bee Farm. Their products are also sold to quality groceries and hotels, railroads and steamship lines as well as private individuals in both city and country. A goodly share of this business is done in the attractive and inviting honey shop on the Duvall Highway. The annual output of honey varies from 15,000 to 20,000 pounds.

Today the Pearce and Dickerson Bee Farm is a joy to visit whether the visitor is just another beekeeper or just another honey enthusiast, and, incidentally, his numbers are increasing by leaps and bounds. Everything on this farm, from the jelly kitchen and honey house, with its radial extractor and complete equipment for the manufacture of quality sweets for the world's consumption, to the Honey Shop fronting on the highway and the home among the ornamental shrubs, is always in apple-pie order. Here tea with home-made bread and cookies is served every afternoon at four, company or no company.

Besides the humming Caucasians on the knoll the only other animals on the farm are Jamie, a Scotty with coat of ebony, glistening teeth and an ingratiating smile, and Kit, the buxom cat, who keeps an eagle eye out for mice both fore and aft. All the buildings are painted white which makes them stand out against their dark background of evergreens. The farm is located three miles from Woodinville and twenty miles from the heart of Seattle.

In addition to their day-in-and-day-out chores on their bee farm, these pioneers constantly maintain an active interest in the betterment of the beekeeping industry throughout Washington. Together with all the other beekeepers in the "Evergreen State" these women were glad to see the new law go into effect in June of 1939 which provided for the state-wide inspection of bees through the levying of a two mill tax on every pound of honey sold at retail. From 1932 to 1939 there was no regular inspection of bees in this state. This new plan was proposed by Mr. R. E. White, Supervisor of Apiculture in the Department of Agriculture at Olympia, the capital city of Washington.

Seattle, Washington.

Sumac Clouds

By R. V. Gordon

Repeated reference in recent issues of the bee journals to various materials as fuel for bee smokers, leads me to believe that many beekeepers still have a pleasant surprise awaiting them. In my fifteen years as a beekeeper I passed through the various stages from a humble beginning with one hybrid colony in a cross-combed box hive, for which I traded a carton of cigarettes, to an apiary of one hundred colonies in modern equipment.

During these fifteen years I have used or seen used in bee smokers, almost anything that could be ignited. Rotten wood, corn cobs, tobacco stems, rags, greasy waste, burlap, partly dry leaves, grass, straw, pine needles, planer shavings, sawdust, and many others. Personally, I started with rotten wood. Rotten apple wood I was told was best. This necessitated the kindling of a fire in the bottom of the smoker. Before I knew what the score was, I had burned the tin coating off the smoker. Then the smoker disintegrated by way of rust and I had to buy a new one. And this is not all. Several times when the bees were good and cross, I found that I had no smoke. The fire had gone out and left me stranded. This, I know from experience, is not a pleasant situation, especially with hybrid colonies.

I next tried corn cobs. The smoke was thin, transparent, and hot. This, of course, irritated the bees and if I was not very careful, I was blowing bits of burning pith all over the bees.

Rags, waste, and burlap were often used for want of something better. But even if their burning quality and quantity of smoke would be acceptable, the odor of burning rags is positively sickening to me and this odor seems to linger in the clothing for a long time. Every so often I would get hold of a piece of woolen goods which, regardless of how greasy or oily it was, I could never light satisfactorily. Also the mess of handling greasy rags is quite objectionable, especially when it is so unnecessary and dangerous. One time I dropped into the smoker a piece of greasy waste I had just secured at a garage. Before dropping this piece of waste into the smoker I was wearing a silk tulle net. A moment later the silk tulle was gone as if by magic. The greasy waste must have been saturated with gasoline

Then somebody mentioned sumac bobs, cones, panicles, or in plain words, the flower clusters. This fellow also forgot to mention that there

Right:—The dense form of this pistillate cluster on the right makes a satisfactory smoker fuel.

Below:—Banks of sumac with their brightly colored leaves and dark red blossoms are beautiful in the fall.

The sumac bobs produce a dense sweet-smelling smoke.

were two kinds of flowers, staminate and pistillate. Of course, I got the wrong kind the first time. There wasn't much smoke and the fire went out continually. Then I got going on the other leg and got the right kind.

The sumac I have reference to is common Staghorn Sumac *(Rhus typhina)*, growing wild over the eastern half of the United States. In my contacts with other beekeepers I find that it is not generally known that there are two kinds of sumac bobs. One plant will grow all staminate flowers, which are loosely connected, many branched and seedy bunches of flowers. Another plant will grow all pistillate flowers, which are closely formed, dense and webby bobs or panicles. This latter kind is the one we are interested in for smoker fuel. In the first place, these panicles are easily gathered almost any time of the year, though preferably in autumn when they are somewhat dried out but not brittle. For my own use in operating one hundred colonies, I gather about two bushels each September and this seems to be an ample supply for the following season. The clusters may be stored in cardboard cartons and, if gathered in the fall when dry, will keep indefinitely. I use a small cardboard carton holding about a peck, which I keep filled and carry in the car back of the seat. There is no odor and no grease to get on one's hands and clothing, yet I always have an abundant supply of the finest smoker fuel available at a moment's notice.

Sumac bobs are easy to light in the smoker without producing intense heat. I crumple a piece of paper about a foot square, light it and drop it into the smoker with a few sumac bobs on top. Work the bellows a few times and presto! a cloud of thick, heavy, dense, sweet smelling smoke, very effective but not disagreeable to one's self or to the bees.

If this material is properly lighted, no hard working of the bellows is necessary to keep it going and therefore little danger of blowing live sparks over the bees. The material is very slow burning, a 4 x 10 smoker properly packed often lasting nearly half a day.

Freeburg, Pa.

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NECTAR FROM SUMACS

By C. W. Wood

It was interesting to note in the February, 1940, Michigan Quarterly Bulletin that the authorities recognize the value of three species of Rhus as sources of nectar, two of them *(Rhus typhina*, which is the staghorn sumac of everyday language, and R. *glabra*, the smooth sumac) being classed as important. That only verifies what observant beekeepers have known for a long time (Pellett credits the latter as being "a well-known source of nectar and is especially important in New England"), though it may be the means of bringing the plants to the attention of others.

In northern Michigan, where both species cover many abandoned farms and burned-over areas, they are far more important than the average beekeeper suspects—a fact that can be proved by watching the plants this month and next when they are in bloom.

Although cursed by farmers because of their persistence in cultivated fields and along fence rows, both plants are beautiful ornaments, not only for their showy and persistent fruits in autumn and winter but also because of the high coloring of the foliage, which often commences in August in dry situations, and both would be useful to the beekeeper for naturalizing in the driest and most barren areas in his neighborhood.

Copemish, Mich.

It's Vacation Time

But not for the Honey Jar

By Mrs. Benj. Nielsen

Drizzle these fruit salads with honey.

"I never use honey in the summer time, so I won't buy any more until fall." That is the theme of many a housewife's refusal to buy honey at the present time. Every grocer, honey producer, or salesman has met this form of sales resistance often—far too often, with the approach of summer. To many cooks honey is classified very definitely as a winter food, excellent for hot biscuits, on pancakes and waffles, and there the matter ends. What a lot of cooking thrills these "unawakened" cooks are missing, and what a lot of healthful treats their families are unwittingly denied! It's up to us, fellow beekeepers and honey boosters, to "wake" these folks up if honey sales are to maintain steady volume and steer clear of the seasonal doldrums.

There is no single reason why the honey jar should hibernate from May to October! Honey can be used economically every day in the year in preparing delightfully tasty wholesome foods. Ranking high as a quick energy food, its ease and rapidity of assimilation should make honey doubly welcome when summer's enervating heat makes most of us feel that any motion is too much of an exertion. Tasty, healthful, easy on the digestive system—what more can one ask of an article of diet!

Surely the cook who would consign the honey jar to summer storage has never known the convenience of a bowl of smooth honey-made dough waiting in the refrigerator. It's no trick at all then to pinch off small pieces and mold them into dainty balls. In no time at all they emerge from the oven golden brown, with a melt-in-your-mouth goodness, to add the crowning touch to a luncheon of cold meats, a crisp salad, a molded dessert and a honey-sweetened beverage. Back into the refrigerator goes the rest of the dough to await future needs. Nor has she known the joy of slicing chilled honey dough to turn out crisp, fresh honey cookies in 10 minutes' time—and that in the cool of the morning. Nor has she known the ease with which fresh fruits are prepared by simply drizzling them with Nature's most wholesome sweet. No effort need be expended in stirring. The natural sugars of the fruits and the honey blend perfectly without any further assistance. Nor has she realized that the temperature never seems quite so high when velvety smooth textured honey ice creams are "ripening" for dessert. Smooth, inimitably flavored honey toppings stored in the refrigerator! Nor has she—well, I could hold forth indefinitely on the lovely uses of honey in summer-time cookery A winter-time food indeed!

This summer homemakers all over the country will have many more demands on their time and energy; everything that will help them speed up their work, without speeding themselves up too much for their own good, will be welcome. The judicial use of honey in food preparation can and will save the homemaker time and at the same time greatly aid in keeping her family well and properly nourished. Undoubtedly, we homemakers will glean many helpful bits of knowledge from the nutritional-defense programs being given publicity through magazines, 4H clubs, schools, and womens' clubs throughout the nation.

When those first tempting cherries are ripe select the very choicest, wash, drain thoroughly, pit, and then drizzle with honey. Place them in the refrigerator and let the flavors blend for at least one hour. Makes a deluxe topping for your favorite honey vanilla ice cream. Strawberries slightly crushed, drizzled with honey and chilled make another topping worthy of consideration. And as for honey-sweetened whole berries, with glist-

ening peaks arising from a serene lake of thick cream—'nuf said—just eat without further ado. They are perfect! Getting back to ice cream toppings, if you would like to dress up your honey vanilla ice cream for a very special occasion try this

Honey Fruit Sauce

One quart strawberries, honey, 1 teaspoon lemon juice, 16-oz. glass currant jelly, 1 cup whipping cream and the grated rind of one orange.

Slice the berries very thin, drizzle with honey to taste and add lemon juice. Beat the jelly (do not melt) to a cream and add to the strawberry mixture. Chill thoroughly. When ready to serve fold in the whipped cream and grated orange rind.

Butter Brickle Honey Ice Cream

Two cups milk, 3 egg yolks, ¼ to ½ cup honey, few grains of salt, 1 teaspoon vanilla, 3 egg whites, 1 cup heavy cream, and 2 1¾ oz. Butter Brickle candy bars (chocolate covered).

Scald the milk in a double boiler. Beat egg yolks until thick, add honey and salt and mix well. Add to the hot milk slowly, stirring constantly. Cook 5 minutes. Cool. Add vanilla. Fold in stiffly beaten egg white and cream whipped to custard consistency. When partially frozen add Butter Brickle which has been finely crushed and continue freezing. If frozen in a mechanical refrigerator, place mixture in a chilled bowl when partially frozen, beat with a chilled rotary beater until smooth, adding Butter Brickle at this time. Return to tray and continue freezing. Serves 6 to 8.

You may wish to use more honey than specified in the above recipe. This amount, of course, will depend upon how sweet or rich you prefer ice cream. The candy, however, will sweeten the mixture to some extent, and this fact should be taken into consideration. If you are accustomed to using an ordinary freezer and do not whip the cream as a rule, do try whipping it. You will find a most superior product when you sample its creamy smoothness.

Honey Salad Dressing

One egg, ½ cup honey, ¼ cup lemon juice, 3 tablespoons cream, or top milk, 1 cup cottage cheese, a few grains of salt, and a few grains of mace, optional.

Beat the egg, add honey and lemon juice. Cook in double boiler for 10 minutes, stirring constantly. Cool. Add cream, salt and mace to cottage cheese and beat mixture smooth. Add to first mixture, blending well. Yield: 1½ cups. This is especially delicious for fruit salads.

Honey Cherry Pie

Four cups pitted, unsweetened fresh cherries, 1 cup honey, 4 tablespoons flour, ⅛ teaspoon salt, 2 tablespoons butter.

Combine cherries and honey; let stand 2 hours. Drain off resulting juice and mix well with the flour and salt. Place cherries in pastry-lined pie plate, add juice and dot with the butter. Bake in hot oven, 450 degrees F., for 10 minutes; reduce heat to moderate, 350 degrees F., and continue baking for about 30 minutes.

Fresh honey cherries make a perfect topping for vanilla ice cream.

Clover leaf rolls in a jiffy when honey dough is kept in the refrigerator.

Rhubarb-Strawberry Ice

Two cups fresh unsweetened rhubarb sauce, not too much juice, 2 cups strawberries, 2 tablespoons lemon juice, few grains of salt, ½ cup honey, and ½ cup milk.

Run rhubarb and strawberries through a sieve. Add remaining ingredients in order named. Pour into freezing tray of an electric refrigerator and freeze for 3 hours. When ready to serve, scrape up thin layers of the mixture with an inverted spoon and blend together. Serve in sherbet glasses immediately. Serves 6. Serve with

Honey Wafers

One cup butter, 1 cup honey, about 3¾ cups sifted flour, 2 teaspoons soda, ⅛ teaspoon salt, ½ teaspoon cinnamon, ½ teaspoon cloves, and ½ teaspoon allspice.

Bring butter and honey to boil very carefully; boil gently 1 minute. Cool. Sift flour; measure and sift with soda, salt, and spices. Add flour to make a soft dough. Roll thin, cut in desired shapes. Bake in a moderate oven 350 degrees F., for 12 to 15 minutes. These wafers are thin and burn very easily, so must be watched closely.

Honey Cloverleaf Rolls
(Refrigerator Dough)

Two cakes Maca granulated yeast, ½ cup lukewarm water, ⅓ cup milk, ⅔ cup shortening, 2 eggs, ⅔ cup honey, 1 cup warm mashed potatoes, 1 teaspoon salt, and 6½ to 7 cups of flour, half of which may be graham flour.

Dissolve the yeast in the lukewarm water. Scald the milk, add shortening, honey, mashed potatoes, and salt. Blend well. Then cool to lukewarm. Add yeast and well beaten eggs. Add sufficient flour to make a soft dough that will not stick. Knead 10 minutes. Wrap in waxed paper or place in tightly-covered bowl and place in refrigerator and use as needed. To prevent a crust forming on the dough, brush it lightly with melted fat. Dough will keep several days. To make cloverleaf rolls form dough into small balls and place 3 in each muffin or custard cup. These should just about half fill the cup. Let rise until double in bulk. Bake in moderately hot oven, 375 degrees F., 20 to 25 minutes.

Strawberry-Honey Ambrosia

One quart strawberries, 1 fresh pineapple, 1 cup shredded coconut, ½ to ¾ cup honey, and ½ cup orange juice.

Wash and hull the strawberries. Slice and pare the pineapple, cut in small wedges, removing the core. Arrange alternate layers of strawberries, pineapple and coconut in a bowl, drizzling honey over each layer. Pour orange juice over all. Place in refrigerator and chill thoroughly. Serves 6 to 8.

Honey-Orange Bavarian Cream

One tablespoon Knox Gelatine, ¼ cup cold water, ¼ cup hot water, ⅓ to ½ cup honey, 1 cup orange juice, 1 tablespoon lemon juice, 1 teaspoon grated orange rind, and 1 cup heavy cream, whipped.

Soften the gelatine in the cold water. Add hot water and honey, stirring until the gelatine and honey are dissolved. Add fruit juices and the orange rind. Mix well. Chill until partially set. Then beat with a rotary beater until mixture is frothy. Fold in whipped cream. Pour into bowl and chill until firm, or heap in sherbet glasses. When ready to serve, garnish with orange sections lightly drizzled with warm honey. Substituting one cup of crushed raspberries or strawberries for the orange juice and rind results in two delightful variations of Bavarian creams. In either case the orange garnish is omitted.

Just a Day's Work

By John G. Jessup

Though early bloom was ten days late the bees seem to have gotten a good start. Today they are fully up to normal strength with 6 to 14 frames of brood. The queen is being stimulated to extensive egg laying by a little nectar secured from dandelions, haw-trees and other sources.

Making up nuclei has been the main work today. Now we have a nuke* on the top of half of our colonies. Those made up earlier have their queens out of the cages and laying. Today we checked 35 queens introduced a week ago and found seven had not been accepted. That is a twenty percent loss, and a very discouraging factor about queen introduction. These nuclei were made up above a queen excluder for six days before they were separated from the parent colony and the queen cage put in. This was done in the hope that with no eggs and no larva less than three days old, the queen would be more sure of acceptance. However the results are just about the same as we secured when the nuclei were made up and the queen cage introduced immediately. Who can tell us how to get more nearly 100% acceptance and then how to prevent supersedure of the queens after they start laying?

The purpose of making up nukes above all colonies strong enough to stand division, is to provide queen reservoirs. With the queen rests the success or failure of each colony. With surplus young queens in the yard no colonies will fail to produce a crop because the queen was superseded during the building up period. Whenever a queen needs to be replaced she is killed and one of these established nukes is placed on top of the colony. Two thicknesses of newspaper may be used to prevent fighting, although we often unite without it. We hope to have more queens this year than will be needed for requeening so they may be used as two-queen colonies. Instead of handling the two queens through the entire season, the Ohio plan will probably be used as given by Mr. Dunham, page 302 of the May issue.

These nukes were made up last winter when the combs of all the supers were sorted and classified. At that time a frame of honey and several frames of pollen were put into a hive body with three empty combs in the center. The nuke is now all ready for use when a colony is to be divided. In making the division, place the nuke beside the hive and take out the three empty combs. Three frames of sealed brood with all the adhering bees are put in their place. Then shake the bees from another frame or two on top. It is important to see that the old queen remains in the old hive. The empty combs are put in the place of the frames of brood removed, making sure the remaining brood is not divided but is in the form of a natural brood nest. The inner cover is put in place with the bee-escape hole closed and on top of this a ring is placed. This ring is the frame of an inner cover with an entrance cut in one end ¼ x 1 inch. This entrance is placed at the rear of the hive. Next, the nuke is set on the ring, the queen cage put in place between the frames of brood and the hive covered to complete the job.

While we are making nukes we are also doing everything else possible to put all the colonies in the best condition for the honey flow. Only the strong colonies are divided. When a very weak colony is found it is moved to the location of a strong colony and the strong colony put in its place. Several supers of honey are on the truck and whenever a colony has less than 15 pounds of honey it is given two or three frames. Large colonies are converting stores into bees at a tremendous rate and if colonies are allowed to become short of honey they will cut down brood-rearing and may even starve to death just a few days before the main honey flow begins. Often there is a dearth of nectar for a week or two at that time. A watchful eye is kept at all times for AFB. If it can be detected before the supers are put on, the loss will be kept at a minimum. Fortunately none has developed so far this year.

Unless something unexpected happens we will have a fine lot of bees when the honey flow comes.

Council Bluffs, Iowa.

*nucleus.

Fig. 3.

Fig. 4.

Fig. 5.

Finding the Fountain of Eternal Youth

By E. R. Root

When A. I. Root, the founder of this journal, was told by the doctors that his days were numbered, he was given the faint hope that he might prolong his days if he would spend his winters in Florida and his summers in Northern Michigan. The "faint hope" and a determination that he was "not through yet" did prolong his lease of life 20 years.

For the benefit of some others who have been given the doleful news that their "days are numbered", I can explain how and where A. I. Root ran away from his grave, fooled the doctors, and lived for 20 years in a land flowing with milk and honey and where he found, as did Ponce de Leon, the "fountain of eternal youth"—"eternal" because it was the stepping stone to that higher existence. He went to Bradenton on the west coast of Florida. There he met his old friend, E. B. Rood. To make a long story short he bought a piece of land opposite Mr. Rood's place at Bradenton.

Except for the Everglades, or that portion of the land within a hundred miles of Lake Okeechobee, Manatee County, and particularly Bradenton, perhaps has the richest and most productive hammock land in all Florida.

It was here that Mr. Root built a modest cottage, cleared the land of big and little trees, started his garden, put in a few bees, raised chickens and ducks, and it was not long before he was furnishing fresh eggs and early vegetables for the hotels

before any one else could at prices considerably above the market. The soil, fresh air, plenty of sunshine and an unbounded enthusiasm made him a well strong man. The record of his work was then given in his "Home Papers" or more exactly lay sermons each month for 20 years until old age at 85 took him on his last journey to his final "eternal home" not made with hands.

Before I left Florida this winter I decided to visit Bradenton where father had spent so many happy days of his life. I arrived Saturday night and went to the old hotel, the Manivista, where father went for the first night.

The following morning, Sunday, I went to church as father would have done, and after the service I felt a tap on the shoulder and who should greet me but my old friend, J. J. Wilder of Waycross, Ga. He was spending his winter, as usual, at Bradenton.

Of course, we hunted up Mr. E. B. Rood, father's old neighbor. Fortunately he was at home. In Fig. 3, we find the two of them out in front of the house, Mr. Wilder on the left and Mr. Rood on the right. The former at one time was reputed to be the most extensive beekeeper in Georgia, and the latter the leading citizen of Bradenton, churchman, banker, promoter, beekeeper, a counselor and warm friend of A. I. Root.

It is eighteen years since father left Bradenton and during that time the city has grown and most of his old friends have passed away or left town. But there were two left whom we called on at Palma Sola on a little peninsula. I refer to J. A. Felts and wife. Their island, or peninsula, is near the tropical nurseries of Reasoner Bros., and is one of the richest garden spots of the world. Its gardener, Mr. Felts, is a real genius in the growing of crops of all kinds. His wife is the mother of a large family of boys and girls and although the birds of the nest have since flown away to establish their own nests (to carry out the figure) the old birds are still there in a veritable Garden of Eden finding God in the soil, the air, sunshine, running brooks, and everywhere in one of the beauty spots of all Florida. Mr. Felts (See Fig. 4) has rare specimens of plants and his soil and climate and his intimate knowledge enable him to know how to make them grow. A beekeeper? Yes, as shown in Fig. 5. The mother, Mrs. Felts, is another genius. Father Time has been very kind to her since I saw her over 20 years ago. In spite of the fact that she has raised a large family and now doing the housework alone she has (dare I say it?) grown younger.

Some of the finest honey cookies I ever tasted were some she had made and aged in a large crock. Her recipe is one she took from our first honey booklet and here it is:

Honey Cookies

Three teaspoonfuls soda dissolved in two cups warm honey, one cup shortening containing salt, two teaspoonfuls ginger, one-fourth cup hot water, flour sufficient to roll.

She made it very clear to me that the cookies should be baked in a **slow** oven until they are a light brown, and aged in a sealed jar a year. The older they are the better.

From Black Soil, Through a Desert, to Fruit Country

We now leave Bradenton, go northward until we strike route No. 32 and drive to Wauchula. We leave the rich black land of Bradenton and as we move northward and eastward we find the land becoming poorer, so poor that nothing will grow on it except wild grass that will support cattle, sheep, and hogs. Trees are scarce and spindling. When we get within fifty miles of Wauchula we strike some fine fruit country and good land. The intervening territory from Bradenton is so poor that not a house or farm is seen for miles and miles. There is more land in Florida that is just as poor.

On arriving at Wauchula we looked for bee hives and sure enough we ran across J. E. Christmas, (Fig. 1.) near Wauchula. He has a small apiary that is used for pollinating the orange groves. Besides keeping a few bees he has a shop where he makes cypress ladders for the fruit growers. Fig. 2 shows some of his products.

There are a good many beekeepers in Florida with a few colonies in and near orange groves. The grower now welcomes the bees as he knows he receives with their help a higher percentage of citrus fruit during the off years and the small beekeeper receives a fine grade of orange and palmetto honey. The orange adds to the color and flavor of the honey. By the way, orange honey from Florida is a shade darker than California orange but just as good.

From the Field of Experience

THE CEDAR SHINGLE—ITS USE IN THE APIARY

By W. L. Arant

The cedar shingle is one of the handiest things imaginable about the bee yard. We use them for many purposes and could scarcely do without them.

For most colonies, in our mild climate, they are the only winter packing we use. They are laid in the inner cover in a double layer, the two layers having butts at opposite ends and the thin edges overlapping in the center. This fills the space between inner and outer covers, and absorbs the moisture from the winter cluster. Shingles used for this purpose should be dry.

Another use for the shingle is to enlarge the hive entrance. Cut strips about an inch wide and run them between the brood chamber and the rim of the bottom-board, butts toward the front. This raises the front end of the brood-chamber by the thickness of the shingle's end, and is quicker and easier than reversing the bottom-board. In the fall the shingle strip is slipped out, and the entrance is thus reduced for winter.

We use a shingle for keeping the hive record. A shingle is kept over the bee-escape hole of the inner cover, and this or another shingle is useful for writing colony condition after each examination. It reposes between inner and outer cover, where neither bees nor weather may mar the writing. Thus a shingle reads: "Killed q. 5/15/38. Intr. P. q. 5/17. Eggs & br. 5/27. Took 100 lbs. honey 8/19/38". Etc. Fall examination uses A, B, and C for health, queen, and stores respectively; A+ indicating clean, C− indicating winter stores inadequate. Needless to say, if the examination should show A−, no further record would be made, for the colony would be burned at the first opportunity. And in doing this the shingle is again the most useful device for killing the bees if calcium cyanide is used. A spoonful of the chemical is spread on a wide shingle and this is shoved in at the entrance. Another shingle may be used, if desired, to close the entrance, although this is not usually necessary.

We use the shingle to contract entrances for nuclei. A notch as large or small as desired is cut in the straight edge of a shingle strip, and this is tacked, temporarily, over the regular entrance, the notch being the passageway for the bees. Narrow strips of shingles are used to fasten tar paper in place when it is used for winter packing.

Last but not least, an inexpensive shingle roof is useful as a shade board in summer and to shed rain in winter. It is made by tacking two double courses of shingles at right angles to each other to a piece of 2" x 4" about two feet long. When set on the hive the two shingle surfaces form a half pitch roof, gable style, but with open gables. Wind would seem to blow them off, unless weighted down, but our experience teaches that ordinary winds seldom do. In rainy weather this roof serves the useful purpose of keeping the entrance dry by running the water off at the sides of the hive.

Forest Grove, Oregon.

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A WORD OF CAUTION

By Chas. Mraz

There has been some talk lately in the bee magazines of using Methyl Bromide for fumigating comb honey to kill the wax moth larvae. This chemical has been highly recommended by some responsible people and I have been assured by the chemical company that make this product, it would not leave any taste or odor to the honey. However, I have learned to the tune of several hundred dollars, no matter what one says about subjecting honey to chemical vapors, to make haste cautiously. I produce several tons of comb honey and do sometimes have trouble with wax moths. I have used calcium cyanide (Cyanogas) and while satisfactory it is rather difficult to use on large quantities of honey. This Methyl Bromide looked good to me as being a labor saver.

I made an airtight box to hold about 15 supers of honey and ordered a 10-lb. cylinder of Methyl Bromide. The gas was first released into a small glass jar which made it possi-

ble to measure the amounts quite accurately. From the jar, it evaporated into the box holding the supers. It certainly was an easy way to fumigate the honey and on the strength of recommendations and assurances I received, fumigated several tons of comb honey. It is true the gas does not have any odor, even in concentrated quantities. As soon as I started to sell the honey, however, a neighbor asked me what was wrong with it, as it had a medicine taste. It was strong enough so that it was impossible to eat the honey. Needless to say, I was in a fix. Airing seemed to lessen the taste somewhat, but the trouble was, it penetrated right through the cappings and into the honey itself. Honey extracted from these combs had that strong medicated taste.

It may be, and is my belief, it was not the Methyl Bromide that gave the taste to the honey, but some foreign substance that happened to be in it. It was a strange fact, the first batches gassed made a very strong taste, reducing in strength until in succeeding batches there was practically no taste made in the honey. On examination, the chemical company claimed no foreign substance was in the Methyl Bromide, but whatever it was, it certainly made an awful mess for me.

Henceforth and hereafter, here is one beekeeper who is going to leave his honey alone just as the bees made it, wax moths or no wax moths. If you must use Methyl Bromide, make sure it doesn't make a mess for you.

Middlebury, Vt.

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BUSY BEES HAVEN'T TIME TO SWARM

By Fred H. Peters

I have been in the bee business for 45 years and like to read everything regarding bees. I keep between two and three hundred swarms and my wife and I take care of them all alone. I have three outyards and the home yard.

The colony shown in the photo is the biggest. I had four with seven supers, one with six and two with five supers full of honey, and none of them swarmed last year. I do not practice swarm control. I have yet to hear of a method that would seem reliable. My swarm control method is to not disturb the bees any more than is absolutely necessary, and add

This was the biggest crop from a single hive. I leave the honey on until it is thoroughly ripened.

the empty supers when needed. Keep them busy and they haven't time to think about swarming.

I got 370 pounds of honey from the high one. I always leave one super with honey on until I'm ready to put the bees in the bee cellar for winter so that they can carry as much honey down into their brood chamber as they can, so they will have plenty for the winter.

Fond du Lac, Wisconsin.

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COOPERATIVE MARKETING OF HONEY

By Herbert Boettcher

The fact that we are living in a changing world means that we will have new problems to face as time progresses. Some of these problems will undoubtedly be hard to solve. One of the problems that may confront the beekeeper is the marketing problem.

As we look about us we find increased production and increased efficiency in the production of agricultural products. We find increased production of honey, and we find increased efficiency in the production of honey. As we analyze the

problem we cannot help but see what happened to the price of farm products when there was an overproduction. It is a question, therefore, whether it is a sound policy to stress both efficiency and production, and to do or to say little about the problem of marketing. If we neglect the problem of marketing, we may find that some day we will be confronted with the problem of overproduction.

Some of the most successful organizations for the marketing of agricultural products have been in the form of cooperatives. In analyzing some of the successful cooperatives of the United States, it seems very probable that a cooperative for the marketing of honey could be very beneficial from the standpoint of the honey producer. The California Fruit Growers of the Pacific Coast, and the Land O' Lakes of the middle west are examples of successful cooperatives.

It seems that a very successful cooperative marketing pool could be organized so that the beekeeper could benefit by better bargaining power and better prices.

Cooperatives have proven to be successful if they are operated and organized according to definite proven principles. Four of the most important of these principles are:

1. One man, one vote.
2. Limited amount of capital stock.
3. Profits are to be paid to the patrons in the form of patronage dividends.
4. Over half of the business must be done by the members.

To organize cooperatively would bring along with it many problems. Before the organization should begin, the following factors should be considered:

1. There must be a definite need.
2. The people must be willing to cooperate.
3. There must be sufficient volume.
4. Some means must be found to capitalize the organization. Since I have made a limited study of the success of some of the large cooperatives of the United States, and since I have reason to believe that honey could be marketed better, I have come to the conclusion that there is need of investigating the possibilities of cooperative marketing of honey.

The fact must not be overlooked that in the past many cooperatives have failed, and with this in mind, a thorough study should be made of why they have failed, and why others have succeeded. Then more time and study should be given to determine whether benefits could be had by marketing and bargaining collectively with honey.

Can cooperatives work in the marketing of honey? It seems that since cooperative marketing has worked for the good of the people in other branches of agriculture, it can work in improving the status of the beekeepers. What we need is more investigation, more evidence, and more study.

Cadott, Wisconsin.

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BEEKEEPING IN WAR-SWEPT BRITAIN

By H. J. Wadey
Editor of BEE CRAFT, Sussex, England
(Written December, 1940)

Readers of Gleanings may be wondering what is happening to the bee industry here. It is one of our least disturbed businesses. The flowers still yield their nectar—weather permitting—and the bees gather it.

The commercial producers have their out-apiaries in lonely spots which are of no particular interest to the Hun bomber, but when he blindly sprinkles his load over the countryside there is a chance of one or two falling amongst hives. I have heard of only one direct hit in an apiary in the country, but of course many have been destroyed in the big towns. A bomb fell within 25 yards of one of my own apiaries, killing a man and seven cows, but the hives were not touched.

When the war opened my paper advised the compulsory evacuation of bees from congested areas. Some of our big cities have many hundreds of backlot apiaries, and it was thought that rescue work might be much hindered by angry bees. The Government did not agree with this, but many people took the advice and moved their hives from the cities to quieter spots. These wise folk are now very glad they did so, for even if their hives were not destroyed it is probable that they would at least have been so much disturbed by falling debris that the bees would not have wintered well.

We are allowed 20 pounds of sugar annually, per stock, for feeding—10 pounds in spring, and a further

10 pounds in autumn. This is sufficient.

There is an enormous demand for honey, owing to shortage of other sweet foods. Prices have risen and there is now no honey left on the wholesale market. (December). In the autumn it was being sold in bulk at £140 to £165 per ton. Before the outbreak of war this normal bulk price was about £115 per ton.

Compulsory ploughing has changed the nature of our honey flows to some extent. Every farm now must have a fixed proportion of arable acreage. Many of our districts have previously not seen the plough for many years, and have produced only milk and beef. Tremendous defense works have taken a great deal of land within 50 miles of the coast to provide surprises for the invader, if he comes. This means that thousands of acres are lost to agriculture and to the bees. Many apiaries had to be moved at a few hours' notice in the middle of the flow last summer because the bees hindered men at work on tank traps and fortifications in rural spots.

There is a shortage of paper and the periodicals are rationed, but the bee press seems to get sufficient for its needs, bearing in mind that the number of pages is reduced. Articles are written, in some cases, in underground shelters during raids. I do much of my editorial work whilst on night duty with a Fire Squad—between calls. When a call comes, down go the papers, a tin hat is clapped on, and then comes a wild drive, almost without lights, possibly for some distance (once 110 miles). The work is thrilling, yes, exhilarating, but sometimes terribly sad when children and woman, injured, dead, and mutilated, have to be removed from collapsed buildings. Hitherto I have seen no trace of military damage at all.

Still, it will not last forever, so we keep smiling. It is wonderful how one can get used to things. Nowadays we do not remark when bombs fall nightly within five or six miles of us, but we do when they don't fall for two nights in succession.

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SECOND GLANCES

By C. M. Isaacson

I can't help but agree with Mr. Carr that colony odor plays little part in queen introduction (page 289). There are so many "exceptions" to the odor theory that it can well be discarded. Queen introduction can be roughly divided into two groups; one, where demoralization of the **bees** is accomplished, and the other, in which by various methods, the **queen** is made to have little or no fear of the bees she is to be introduced to. Fear is fatal to the queen; either the queens must be put into a state in which they take little notice of her (smoking, shaking, heavy feeding, etc.), or the queen must feel "at home"—ask assistance, as the article says. Of course, there are cases (certain stages of queenlessness) where the bees eagerly welcome the queen, but that is not strictly a matter of introducing at all.

If one doubted that beekeeping has "grown up", he can convince himself by looking at the many well managed and equipped outfits such as L. D. Taylor's, as described by Clarence Tontz (page 291). It shows the rest of us that there can be a real future ahead. I can't help but wish, though, that a servicable and fast substitute could be found for carbolic acid in honey removal. It will do our product no good in the end.

Among the several legends related by Bro. Babek (page 295), it was especially interesting to read of a probable cause (or beginning) for the "noise" custom in stopping runaway swarms. There are many people now who firmly believe in its efficiency, with no knowledge of how it originated.

Mr. Root is performing a real service in discussing the problem of spray and dust poisoning of honeybees. His article (page 296) and the short item on page 310 should be carefully read for the suggestions they contain, and anyone with experience in the subject should report anything that might be of further help. If creosote proves to be really effective, along with furnishing water in the apiary to prevent the carrying of poisoned water, a practical and easily procurable remedy will have been found.

"Three strikes are out in any league" says a popular saying, in which Mr. Finn evidently puts no belief whatsoever (page 298). Well, another one states that a person who won't be licked, can't be, so it is safe to prophecy that he will become a successful beekeeper soon. Here's hoping your queens prove better this season, Mr. Finn; I can appreciate

the feeling that comes when one after another "flunks out".

Prof. Dunham's type of two-queen system (page 302) looks good if dependable queens can be secured at the right time. Extra manipulation is required, but if larger colonies and no swarm problem result, the net labor may be worthwhile and little more in the end. With a good single queen and the Demaree system, enormous colonies are also produced for the honeyflow; it would be of interest to see the two methods compared in the same apiary.

The need for an apiary windbreak is again shown by the item on spring drifting (page 308). Most beekeepers have experienced more or less of this trouble, especially when there is insufficient variation in the apiary plan or bee landmarks. Long, evenly spaced rows look nice to us but not to the bees.

Wisconsin is going at the advertising of bees in a big way—with seven by nine foot posters! It is an excellent idea, a good many people should be reminded of honey through them. It is not surprising either, that Mrs. Grace comes in for a part of the credit; the American Honey Institute under her direction has never ceased in its really worthwhile work. And by the way, be sure to look over the new recipe book (see editorial on page 317), it will be well worth doing. I found it the best yet.

Upon reading E. S. Miller's concise review of the several methods for handling extra strong colonies, it comes to mind that it seems only super hives are mentioned of late (no detraction on the value of Mr. Miller's comments). What about the occasional weak colony (or aren't there any such now-a-days)?

It seems as though the Everglades section is definitely on the way up as a beekeeping region (page 314). Mr. Root's many articles have described and pictured much of this territory and have made interesting reading.

The editorials this month placed considerable emphasis on abundant stores clear up to the honeyflow, and very wisely so (pages 317-319). An apiary surely proves anew the truth of the timeless advice, "to him that hath, more shall be given * * *".

Middle River, Minnesota.

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Cover Picture

The cover picture of the child unafraid of the bees was taken by G. A. Pauli, Pueblo, Colo.

RESULTS OF AN EXPERIMENT

By Jack Deyell

We conducted a little experiment recently to determine the difference in consumption of stores between colonies in single-wall and double-wall hives. As seen from the following, ten normal colonies were used, five in two-story Buckeye or double-wall hives and five in two-story single-wall hives. Five months and four days time elapsed between weighings.

Record of Weights of Experimental Hives

Colonies in 2-story single-wall hives

	Weight Nov. 12, '40 lbs.	Weight April 16, '41 lbs.	Loss lbs.
No. 1	125	99	26
No. 2	146	106	40
No. 3	135	103	32
No. 4	142	112	30
No. 5	124	77	47
		Total loss	175
		Average loss	35

Colonies in 2-story double-wall hives

	Weight Nov. 12, '40 lbs.	Weight April 16, '41 lbs.	Loss lbs.
No. 6	177	142	25
No. 7	160	124	36
No. 8	182½	158½	26
No. 9	176½	148½	28
No. 10	206	180	26
		Total loss	141
		Average loss	28.2

It will be seen that the average per colony loss in weight was 6.8 pounds more with colonies in single-wall hives than in the colonies occupying double-walled or Buckeye hives.

At present the colonies in Buckeye hives have more combs of brood than colonies in single-wall hives.

However, it is the amount of surplus honey secured that counts. So we hope to keep records on amount of surplus honey stored by each set of colonies. That should tell us something.

• • •

Honey Keeps Feet Supple

Another use for honey has been discovered by Grace Hartman, the dancer. She learned it from Ruth St. Denis. Before she retires she fills her socks with honey to keep her feet soft and supple.—Louise Hannah Kohr, Seattle, Washington.

Editorials

Honey Prices, will they advance with other foodstuffs? With continued strikes and more strikes, an economist has averred that the price of foods will go still higher. If so, will honey go up in spite of large stocks of sugar in Cuba?

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Mixed poisons are less destructive to bees than clear arsenate of lead, or calcium alone. It is apparent from the discussion thus far that arsenicals mixed with nicotine sulphate or copper sulphate, are less destructive to bees than arsenicals alone. It should not be forgotten that arsenic itself is sweet. When either nicotine or copper is added, there is, apparently, a repellent effect.

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Pine needles available through most of the South make a fine smoker fuel. There is just enough resin in them to make them readily ignitible and at the same time they give off a pungent smoke that will subdue any colony. Another good fuel obtainable at garages and machine shops is greasy waste. It should be remembered, however, that old rags not greasy may furnish a smoke that will make a colony more stingable—if we may coin a new word.

• • •

Dividing Colonies During the past week we have had some new experiences in dividing very populous colonies with an abundance of honey and brood. We find that the two-story colonies with deep or standard food chambers are ideal for dividing. Many of these colonies now have brood in from nine to fifteen combs. The upper chamber, as a rule, has more brood, honey, and pollen at this season of the year (the first week in May) than the lower chamber.

To divide, we simply find the queen, leave her in the lower chamber, then set the upper chamber onto a new stand, giving it a bottom and cover. We like to shake a few combs of young bees from the division on the parent stand, into this brood chamber on the new stand, because all of the old bees will return to the parent stand.

A laying queen is introduced to the new division and the hive entrance is reduced down to about ⅜ x 1½ inches.

We make sure that both divisions have ample stores, especially if the weather, following the dividing, is unsuitable for gathering nectar.

It has been our experience in the past that a new division having brood in six combs with ample honey, pollen, and bees with a young queen will build up very rapidly, especially if the dividing is done at least five or six weeks prior to the major flow.

Dividing should not be done unless colonies are very populous, running over with bees and have a super abundance of stores. Such colonies may be divided to advantage, because dividing the brood and bees is a swarm-control measure, also larger crops of honey are secured.

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Water for Bees in the Apiary During the heavy brood-rearing period of spring, bees consume enormous quantities of water—much more than during other portions of the year when little or no brood-rearing is going on.

When arsenical spray is used, it is evident that the leaves and blossoms remain wet for a considerable length of time. If bees are short of water in the immediate vicinity, they are quite inclined to take water from the wet leaves which have been sprayed with arsenic. It is highly important, under such circumstances, that beekeepers have in and near their yards, water troughs or some means by which bees can collect on blocks of wood floating in tubs or pans of water without having to go to some pond or creek a mile away.

George H. Bohne, of Luling, Louisiana, keeps in his apiary at all times a good-sized keg of water with a faucet at the bottom. He regulates this so there will be a slow drip on pebbles or blocks. When bees become accustomed to these watering places they will go there very freely, especially if water is kept there constantly. In other places instead of a keg, a tray of pebbles can be placed under a hydrant which is open just enough to allow a slow drip of water, at least during daylight hours.

XUM

That there is real danger of poisoning bees by wet arsenical spray is shown on page 297, first column (H), May issue of Gleanings.

When locating apiaries in the spring, it is highly important that the yards be placed, if possible, near a source of water—a pond or a creek; and on hot days the bees may be seen in large numbers flying from the source of water to their hives.

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How Can Beekeepers Help in National Defense?

During the last world war there was a sugar shortage and the price soared to 30c per lb. Sugar was rationed to 1½ pounds per person for a single purchase. The U. S. government urged beekeepers to produce extracted honey. Those who did, received fabulous prices, in some instances 24c per pound in carloads.

We may never again see such high prices. At present sugar supplies are ample. The carry-over of Cuban stocks on January 1, 1941, totaled 1,342,000 short tons or more than twice the normal carry-over of the previous year, according to a recent issue of "Marketing Activities" issued by the Department of Agriculture.

However, no one knows how long the war will last, nor how much food will be needed to feed the starving millions in war-torn nations.

The answer to the question, "How can beekeepers help in national defense," is to produce the very maximum crop and be ready for any eventuality.

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Uncle Sam Furnishes Honey to Under-Privileged School Children

It may not be generally known that large quantities of fine-flavored light amber and extra light amber honey produced in California and Arizona, and Inter-mountain states, has been held over in storage with no market for it. It had been shipped formerly to Europe and particularly to Germany but on account of the embargoes on shipping could not be sold out of this country.

The recent heavy rains in California give promise of a heavy flow of honey in that state. This, with the large amount in storage held over, was liable to make an acute market situation unless this darker honey could be moved.

It appears that Harold J. Clay, U. S. Marketing Specialist, and Jas. I. Hambleton of the Bee Culture Laboratories, have been working with P. R. Taylor and John L. Wann of the Surplus Marketing Administration, Washington, D. C., to see if it would be possible for their Division to purchase some of this held-over honey and use it for school lunches for under-privileged children. The matter has been under consideration for some time.

It was the privilege of the Senior Editor to be present at one of these conferences on March 26 last. At that time it was believed that the project might go through.

The following letter as of May 3d, from the Chief of the Division, shows that the project has received the approval of the Secretary of Agriculture. The letter speaks for itself:

> You will be interested in learning that recently the Secretary of Agriculture approved a program authorizing the purchase of a quantity of honey for distribution to persons eligible to receive surplus commodities through the medium of the school lunch program. It is hoped that the operation of this program will result in the quick removal of some of the carryover of the 1940 crop located in the West Coast and Intermountain States and that beekeepers thus will be benefited.
>
> P. R. Taylor,
> Chief, Fruit and Vegetable Division.
> Surplus Marketing Administration,
> U. S. Department of Agriculture.

This is a step in the right direction and if a considerable amount of honey can be so distributed, it will introduce honey to the children of the United States more than anything else that has occurred in a decade.

The effect on the market ought to be good in the long run.

We feel sure the beekeepers of the country will vote the Government a vote of thanks.

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Importance of Water in Queen Mailing Cages

Circular E-529, entitled "Some Effects of Temperature, Relative Humidity, Confinement, and Type of Food on Queen Bees in Mailing Cages", by A. W. Woodrow, of the Intermountain States Bee Culture Laboratory, Laramie, Wyoming, has just come to hand. This deals with a very timely subject, the sending of queen bees and their attendants in cages, by mail. Every queen breeder, especial-

ly, not to mention all beekeepers, should obtain a copy of this circular which may be secured without cost by writing to the Division of Bee Culture, Bureau of Entomology and Plant Quarantine, Beltsville Research Center, Beltsville, Maryland, or any of the Bee Culture Field Laboratories.

The importance of this discussion will be apparent when we take into consideration the enormous loss of queens in transmission through the mails. Some queens arrive in poor condition, so poor that the bees kill them before they have a chance to lay. Other queens, on account of excessive temperature occurring during the trip, are superseded in the colony prematurely. Neither the recipient nor the shipper is pleased with results. (See page 363.)

This paper describes experiments in which queens in mailing cages were kept under controlled conditions for varying periods of time to determine the most suitable type of cage and food for queens in transit through the mails. It was found that queens and attendants need water as well as candy, and that while queens can survive without water, the condition of queen and bees is much better when water is supplied. It was learned that queens received from the South and held from 7 to 17 days survived in good condition at temperatures ranging from 85° to 100° F. provided water was available, but bees and queen given **candy alone lived** only about 4 days, on the average. Again temperatures of 100° F. or less had little or no detrimental effect on queens given candy and water, but life was shortened by the higher temperatures. Queens lived longer at temperatures of about 104° F., however, than did queens not provided with water at temperatures below 100° F.

It is interesting to note that queens provided with proper conditions (candy and water) confined for a period up to two weeks before introduction into colonies, began to lay just as quickly as queens introduced immediately when received from the South, and there was no more supersedure in the colonies to which the confined queens were introduced than in other colonies.

The results of these experiments by the Government men are not surprising to the writer, who, some 25 years ago sent out queens under the same weather conditions, in cages with candy only and in cages with candy **and a water bottle added.** Bees and queens supplied with the latter came through in better condition, under confinement for a much longer period, than those supplied only with candy. The results were so satisfactory that we then put into each cage a small vial containing in some cases a teaspoonful and in other cases a tablespoonful of water. A slit was cut in the cork and a string inserted in the slit after the little vial had been filled with water; but unfortunately we found that the water leaked out too fast, or not fast enough. When it came too fast, the candy was wet down and the bees were smeared with candy and died, and when it did not come fast enough, the candy dried. Accordingly we gave up the experiment. The difficulty lay in getting the slit in the cork just large enough to allow the free exit of water through the string, on the principle of the old wick lamp.

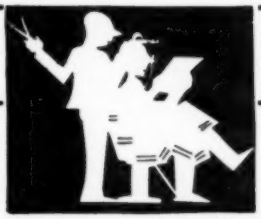
As we look back, we gave up the use of water prematurely. We now recommend that experiments be conducted by queen breeders in supplying their cages with small pill bottles, such as can be obtained at the drug stores. The bottles we used were from ¼" to ⅜" in diameter and from 1" to 1½" long. The larger bottles were used where queens were to be sent for long distances.

Back in the early 80's, A. I. Root made little tin water bottles, about ¼" in diameter and 1" long. A small hole was punched on one side, and then the little container was filled with water by means of an oil can. This worked very well, but the metal bottles were too expensive.

We suggest that the Bee Culture Laboratory continue its work in an effort to discover a water container, which will feed out the water just right. When that is accomplished, we believe the loss of queens through the mails will be negligible and that supersedure can be reduced. The queens will arrive in much better condition and be more readily accepted by the bees.

In this connection perhaps the reader will be interestetd in the further activities of the Bee Culture Laboratories as given in the first article in this issue. This will show that we need every penny of the $83,000 alloted to bee culture.

Just News



It will be the pleasure of the Scott County Beekeepers' Association to act as host to the Iowa Beekeepers' Association in a summer meeting to be held at Credit Island, on the Mississippi River near Davenport, on June 24 and 25, 1941. We hope to have in attendance beekeepers from throughout Iowa, and also from a wide area in Illinois. Many outstanding speakers have consented to participate in the program; and there will also be such entertainment as a boat trip on the Mississippi, and a tour of the city.—J. M. Hitchings, Pres.

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The summer meeting of the Iowa Beekeepers' Association for western Iowa will be held Wednesday, July 9, at the home of Roy Littlefield, Exira, Iowa. Some may wish to visit Pellett Gardens, fifteen miles south of Exira. —Glenn O. Jones, Vice-Pres.

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The following entry appears in the Summer Session Bulletin of the University of Illinois: "Entomology S31. **Essentials of Beekeeping.**—Social life, metamorphosis, habits and adaptive structures of the honeybee; practice in seasonal management of bee colonies, including actual care of apiary. Enables teachers to employ the honeybee as illustrative material in biology or nature study courses, or in directing projects of boy scouts, 4-H, and Future Farmer clubs; also provides practical training for beekeeping as a profitable avocation. Either the discussion or the laboratory may be taken separately for one hour of credit. Lab. fee $1.50 for students registering for the laboratory work. 1 or 2 hours Discussion 3 hours TT 104 Vivarium Milum, Laboratory 1-3 hours TT 104 Vivarium Milum." Persons desiring further information about the other courses offered during the Summer Session should address requests for information to the Registrar, University of Illinois, Urbana, Illinois.

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At its April meeting, Mr. Chester A. Robinson, Principal, Kendall School, Belmont, was elected Secretary-Treasurer of the Middlesex County Beekeepers' Association of Mass. This club will meet at the home of Mr. and Mrs. Perley S. Smith, Kensington, New Hampshire, on Saturday, June 28, at 2:30. Mr. George A. Meigs, from Essex County Agricultural College, will speak on "Honey for Health". Hives will be opened, and the Ladies' Auxiliary will serve supper featuring cold meats, salads, rolls and honey ice cream, honey cakes, and coffee. Essex County and Northern Essex beekeepers as well as New Hampshire beekeepers are cordially invited with their ladies to this meeting.—A. M. Southwick, Pres.

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Just a word concerning the passage of new legislation relative to the apiary inspection program in Iowa. Three changes have been made in the existing law, one places the regulatory phase of the work, particularly the issuance of regulations and the enforcement of cases which must be handled by regulatory effort, under the State Department of Agriculture. The second provision has to do with requiring certificate or permit to ship bees into the state of Iowa. The third provision is that it is unlawful to keep bees in box hives in those areas where inspection clean-up or area clean-up is being conducted. These are three changes that have been passed by the legislature at the request of the beekeepers of the state of Iowa through the Iowa Beekeepers' Association.—F. B. Paddock, Ames, Iowa.

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Lloyd C. Gardner, Delaware, Ohio, one of Ohio's largest commercial beekeepers, president of the Ohio Beekeepers' Association, also president of Ohio Apiaries Cooperative Association, suffered a heavy loss of apiary house and bee equipment recently, due to fire.

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The 6th annual Wabash Valley Beekeepers' Round-up is to be held on **Saturday, August 23rd,** at the beautiful **Twin Lakes Park** in **Paris, Illinois,** with Carl E. Killion as this year's host. For the past 5 years this Round-up has been held at the home

(Continued on page 408)

American Honey

Mrs. Harriett M. Grace
Director of American Honey Institute Office
Madison, Wisc.

The price of honey and the demand for honey this fall and winter will in some measure depend upon the publicity that honey receives during the summer and early fall months. The Institute has already been promised some national publicity. Every honey producer in the nation will want to have his name on the Institute's 1941 list of subscribers.

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A few libraries have asked for a copy of "Old Favorite Honey Recipes". Will you be responsible for seeing that your library has at least one copy of this book? Send ten cents for the copy you desire to place in your library.

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Did all the West Coast see the full page article with pictures in "Daily News", Los Angeles, May 1st? The article is entitled "Bee Culture, World's Sweetest Job". We understand that this paper goes into some 22,000 homes in that area and that it is the only metropolitan Los Angeles newspaper that uses actual brand names editorially.

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Will those who are planning to order Institute leaflets or "Old Favorite Honey Recipes" please let us know in advance? We do not want to disappoint anyone in the industry but shipments of paper are coming through many weeks late. We want to have our orders for a re-run in so that there will be no delay in shipping your orders to you.

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The "Commercial Outlook", March, 1941, Woman's Edition, has almost a page of honey recipes by a writer who has been giving hearty cooperation to the Institute.

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George Rector in his column of May 8th, in the Chicago Daily Tribune for Wilson and Company again gives a recipe for honey with ham. The Chicago Tribune of May 9th gives a recipe for Honey Glazed Ham Loaf and heads its column, "Something New and Shiny! It's Honey Ham Loaf".

Institute Notes

The American Meat Institute for April issued a seven-page release. The attractive first page of the release uses pictures of bees to illustrate the copy and goes on to mention "honeybees, bumblebees and Vitamin B's". Another page of the release is devoted to honeyed ham.

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The U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine has a most instructive release by A. W. Woodrow, Division of Bee Culture. It is dated March, 1941, No. E-529. The title is "Some Effects of Temperature, Relative Humidity, Confinement, and Type of Food on Queen Bees in Mailing Cages". (See page 382.)

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Because a number have written to this office in regard to menus, we suggest that a few rules be kept in mind.

1. The attractive appearance of food helps aid the digestion.
2. There is no one flavor that should be carried all through a meal.
3. Both acid and sweet foods should be included.
4. The same food should not be repeated in one meal. For example; cream of tomato soup and tomato salad.
5. Serve but one strong flavored food. For example, either cabbage or onions.
6. Serve a variety of foods. For instance, if we serve rice we do not need potatoes or tapioca pudding.
7. The texture of food should be considered. Unless the family is on a soft diet there should be a good balance between soft and solid foods.
8. Even in hot weather it is well to have at least one hot dish in the meal.
9. Serve hot foods hot and cold foods cold.
10. Include honey in every meal.

From North, East, West and South

NORTHERN CALIFORNIA, May 5.

Weather: March was one of the most pleasant months of the year—plenty of rain and plenty of sunshine. April came in with irregular weather—some rain—and when not raining, clouds and high fogs. May continues the same way. It is now May 5 and unsettled weather. The rains of April made history. Several counties reported all records broken for rain of the year. If a heavy rainfall guarantees a crop of honey, California is on the right side for the coming year. Unfortunately it requires more than rain, in fact, the rain has caused some complaints from beekeepers in caring for their bees.

Condition of Bees: From several of the centers of queen and package bee production comes the complaint that the rain has prevented the mating of queens. Building up of colonies in many cases has been irregular, in some localities too much swarming. The most complaints are coming from orchardists where bees have not been able, on account of the rain, to get out for the proper amount of pollination of the fruits and flowers. After all, the reports coming in from extraction areas showing 40 pounds to the colony in the eucalyptus and 60 pounds in the orange is not bad.

Markets: There is little change in market prices. Local demand for honey in the Oakland and San Francisco market is somewhat slower than a month ago but prices are holding up. Attempts on the part of beekeepers to advance prices has resulted in some encouragement to producers but their work is not finished.

The Federal-State Market News Report indicates only light supplies of honey remaining in the hands of producers, although a few sizable lots of star thistle honey are being held for higher prices. Inquiries from eastern buyers for carload quantities of star thistle and other grades of honey are encouraging

Beeswax: The price being offered today for a good clean wax should be encouraging to all producers to make greater effort to have wax in right condition before putting it on the market.

Miscellaneous: A few years ago one of our younger beekeepers appeared before the State Association announcing a honey coated cereal which he believed would prove a boost to honey. There was some show of interest but the matter soon died down. The beekeeper could not be silenced so easily; he came again, this time with more enthusiasm and a plan to sell stock. Beekeepers had been fooled too many times to make selling stock an easy undertaking and the honey-coated cereal was forgotten by many of the beekeepers, but not by the original promoter who worked tirelessly for the success he believed his honey cereal deserved.

The result today is that Oakland has another great manufacturing plant with a bright future before it and the owners are beekeepers.—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, May 1.

Weather: April, as we mentioned in our last letter, came in with a promise of moderating temperatures. This in a measure was verified but the weather was not nearly so mild as the beekeeper would have wished. Throughout the month, while we have had no heavy rains and the weather has remained too cool and cloudy for the bees to do their best at gathering nectar, oranges have blossomed well and secreted nectar which, had the weather been favorable, would have given a good crop. In many cases, for days at a time it was just about twenty degrees too cool for the bees to work satisfactorily. April 30th brought rain and May 1st is cloudy and cool.

Honey Crop: If Southern California produces one half the orange honey it did last year it will come up to our predictions. Two reasons will account for this. First, there were not nearly so many bees moved

to the orange groves this year as one year ago and second, those that were moved will not store as much honey per colony. Black sage has been yielding well and when the weather has been favorable bees have been storing honey from that source. All in all the crop in Southern California promises to be good but not a record crop.

Prices: Prices for old crop honey remain about the same. We have not heard of any offers for the new crop. Extracting will start shortly and by the time this is in print a goodly part of the new crop will be gathered. Beeswax remains about the same as last reported.

Miscellaneous: May 1st, opening day for trout fishing, found yours truly on a fishing stream,—one of an estimated four hundred thousand Isaac Waltons in California angling for the wary trout. From our home to the foot of the mountains, a distance of about sixty miles, the roadside and most of the country is covered with a most gorgeous array of blossoms of every hue and color. Many of these are honey producing varieties but the black sage is by far the most outstanding. This beautiful shrub, that gave California its great reputation for sage honey, has been in full bloom for a month or six weeks. It lines the highway for miles and is certainly a most beautiful sight. Why not have a picture on the cover of Gleanings?

White sage and wild buckwheat are sending out a luxuriant growth and will be blooming in about three weeks. These two excellent honey plants blooming as they do at the same time furnish that lovely blend sold on the market as sage-buckwheat which is very much in demand by the honey buyers. During a normal season we will venture to say one half of the honey produced in Southern California outside the irrigated sections can be classed as sage-buckwheat. Growing as they do over vast areas of the seven southern counties the beekeeper operating in sage buckwheat this year should get good returns for his labors.

It is seldom that we have to cry, enough, but most of those who have to do with the soil are wishing that it would turn warm and clear up as grain and hay crops are being damaged, weeds are growing and it is hard to get on the ground to do the necessary work.—L. L. Andrews, Corona, Calif.

TEXAS, May 1.

Weather: The weather for April was a continuation of good weather for a number of months. Bees everywhere built up in wonderful shape and light to heavy honey flows began all over southwest Texas. In some sections in the Nueces Valley heavy flows from guajillo, guayacan occurred during the first three weeks of the month and were continuing when this report was sent in. On the seventh a light rain occurred which was welcomed by the farmers and was utilized by the honey plants to good effect. On April 13, cloudy weather and showers began and this condition reached its culmination the last week in the month when a steady downpour for three days made a record of rainfall for about thirty-five years. As a result bees that were in very strong condition and many that were swarming were so affected by the cold that large amounts of brood and most of the drones have been thrown out or driven from the hives. The weather, however, is still sufficiently warm that with a few days of sunshine the bees will be back on their old footing and storing honey. Just at present horsemint, catsclaw, and persimmon are coming into bloom in abundance. The prospects are still very good for a big spring yield in this part of the State. During the first part of the month Mexican persimmon, one of the most common of the brush plants growing in Texas, bloomed profusely and the bees were able to store considerable persimmon honey. As a rule the Mexican persimmon blooms early when the bees are not in a condition to collect the nectar. Mexican persimmon honey is very different from the honey of the eastern persimmon. The persimmon honey from Texas is light yellow and is a very fine flavor; however, there is not one year in twenty when any of this honey can be secured in a pure state. The plant, however, is valuable as it gives stores when such stores are greatly needed in the early spring.

Miscellaneous: The migration of bees and beekeepers is on in full force. The combless package men are operating vertime and making long detours to avoid muddy roads. We have several reports of men over-

wintering in the Valley who already have taken one load of packages North and have returned for a second load. Most of these men report that they are well satisfied with the proposition of wintering in extreme south Texas and moving their own packages North in the spring.

Remember that the Texas Beekeepers' Association holds its annual meeting at Huntsville, Texas, June 19, 20, 21. The beekeepers are to be the guests of Sam Houston State Teachers' College and the City of Huntsville. All beekeepers everywhere are invited to attend and are assured of a good time.—H. B. Parks, San Antonio, Texas.

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MINNESOTA, May 9.

Weather: Winter seemed very reluctant to leave Minnesota this year, the snow cover remaining till well along in April, but after spring once got a foothold she made the most of it and the last three weeks of April and first week in May have been unusually fine and warm with a good proportion of sunny days. A cold snap came with the beginning of the second week of May bringing freezing temperatures in the northern half of the state. April was below normal in precipitation, but the soil had plenty of moisture from earlier spring rains and the melting snow.

Condition of Bees: Colonies that came through the winter with plenty of stores are building up very rapidly. Many colonies, however, are short on stores which is causing much dwindling. Most reports coming in indicate a heavier consumption of stores than usual during late winter and early spring, and a consequent need for heavy feeding of many colonies. The amount of winter loss averages heavier than usual although some beekeepers report most of their bees came through in fine shape.

Honey Plants: Most of the early spring honey plants blossomed a few days earlier than last year. All plant growth took a tremendous spurt about the middle of April because of the abundance of moisture and warm weather. In general, plant conditions appear to be ideal for this time of year, although there are parts of the state where the number of plants was cut down by the severe drouth of last year.

Miscellaneous: Joseph F. Reinhardt, who has been a graduate student in Apiculture at the University of Minnesota for the past several years and a deputy bee inspector in Minnesota, has just been appointed State Apiary Inspector of Montana, to work under the direction of State Entomologist, Dr. Harlow B. Mills, State Agricultural College, Bozeman, Montana.

More interest than usual has been shown by the local beekeepers' associations. Several spring and summer picnic meetings have been planned. A meeting of the Southern Minnesota Beekeepers' Association was held on April 18 at Northfield, Minnesota. Earle Patten of Medford was reelected president, and Harold Goltz of Waterville elected secretary to succeed Ralph Anderson, Northfield, who resigned because of being subject to draft at an early date.—M. C. Tanquary, St. Paul, Minn.

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MICHIGAN, May 9.

Weather: Abnormally hot weather following a mild winter stimulated bee activity and resulted in strong colonies two weeks earlier than last season with some swarming reported before colonies were unpacked. Generally, reports indicate good wintering with the exception of many colonies starving in some areas where there was no honey flow after mid-August.

The heavy honey-producing area of Michigan is dry and needs plenty of rainfall before June 15th.

Honey Prospects: Clovers wintered fairly well and most beekeepers are hopeful of an average crop, provided the necessary rainfall occurs soon. The weather was favorable for nectar secretion by maples, fruit bloom, and dandelions. In some areas colonies drew heavily on winter food while in other areas they used little. Considerable spring feeding has been reported in Central Michigan.

Miscellaneous: The honey market remains comparatively steady although the majority of the lots held over are being gradually moved. Apparently, sources of cheap western honey have filled the demand which ordinarily seeks Michigan honey at the going market price, thus fore-

stalling an apparent gain in local prices indicated last month.

"Michigan Days", June 6 to 11, is a cooperative advertising effort backed by the State Department of Agriculture and the combined forces of the independent and chain grocers of Michigan. Advertising material for each of ten basic Michigan agricultural products, including honey, will be supplied to 25,000 stores throughout the state and an advertising program will be featured in 250 newspapers and in several radio chain advertising features. Michigan beekeepers feel proud to be included in such a wide scope advertising effort and are cooperating by supplying necessary funds to see the matter through.

Dr. Howard Potter, Honey Inspector, has been making a tour of inspection of grocery stores in several large cities in Michigan and finds a surprising range of quality of honey offered for sale. Based on these findings, recommendations will be made to improve the producers' care in the preparation of honey for market in an effort to increase the confidence of the consumer in Michigan honey. —R. H. Kelty, East Lansing, Mich.

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BRITISH COLUMBIA, April 29.

Weather: We cannot help referring to the calendar these days to reassure ourselves that April is still with us as the season is the earliest we have known and the bees seem still ahead of the season. Those friends with a sketchy knowledge of Canada who think of it only in terms of ice and snow would receive a surprise to look over our colonies at the present moment.

Conditions: Extra early strength of the colonies enables the bees to take fuller advantage than usual of the flow from fruit and dandelion and we have strong colonies wintered in one and a half stories which have been given two Langstroth supers to take care of the rush of nectar.

But heavy colonies have their drawbacks when one must be prepared to pull out at twenty-four hours' notice when spraying is about to begin.

Apple blossom has been light in some districts because of bud injury caused by sudden frosts of last fall, but pears and cherries have given a wonderful showing of bloom, and bees have done well on these.

Prices: British Columbia honey seems to be about cleaned up and the new crop should find a receptive market when it is ready. With an increase in the price of sugar of three cents per pound in the last twelve months, including the extra war tax announced today, prices of honey should be higher and we fail to appreciate the point of view of those Jeremiahs who seem to fear that a big crop of Canadian honey this year will be a disaster.

Orderly marketing has saved the British Columbia apple industry in a year with most of the export market cut off and if the larger producing provinces, with their organized cooperatives, will refrain from dumping, we can at least hold the advance already gained.

Miscellaneous: The spray poisoning situation has been alleviated somewhat by a change to the use of cryolite in place of arsenate of lead in cover sprays during July and August. During the past two seasons that the change has been in effect, little loss has been noted during those months which formerly showed a severe loss due to the use of sweet clover and alfalfa as cover crops in the orchards.—J. F. Pearcey, Kelowna, B. C.

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NEW YORK, May 5.

Weather and Honey Plants: An unusually early spring has resulted in clover making an excellent growth. Alternate freezing and thawing did not occur and there was very little, if any, damage from heaving. Seedings going into winter in good condition coupled with favorable spring weather indicate a good nectar flow later on. Rainfall has not been as heavy as desirable although light showers are helping out. A rainy May in 1941 will mean a honey flow, but we're still waiting for the rain.

Colony Conditions: Unpacking operations are proceeding rapidly and most colonies appear to be in excellent condition although light in stores. Some yards will undoubtedly require feeding before the honey flow. In any event they must be carefully watched to prevent any from running short of stores. All beekeepers in this area report about the

same conditions with many expecting to feed at least some apiaries. Very warm weather is causing bees to cluster outside their cases with two pounds or more of bees often seen at an entrance. Except on rather cool mornings these are easily smoked in before unpacking. Producers who worry about excessive drifting under these conditions or under any unpacking conditions would do well to start very early in the morning and get a yard or two out before the bees start flying actively. This not only helps prevent excessive drifting, but the work is done without veils and is completed at a comfortable temperature for working.

Market: Very little honey remains unsold in this area, with the buckwheat market practically bare of any good quality honey. This seems to be due largely to the very short crop.

Miscellaneous: Whether honey will be marketed in the future at prices making beekeeping profitable or whether marketing will grow steadily worse depends almost entirely on producers. Dealers receive most of the blame for present conditions, but after observing practices of many beekeepers in handling honey and marketing it, I am convinced that dealers are not at fault. When beekeepers realize that honey must be handled with respect, graded properly, and sold honestly and in an orderly manner, then and not until then can an advertising program of any magnitude help the industry efficiently and with a lasting effect.—William L. Coggshall, Ithaca, New York.

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NEBRASKA, May 5.

Weather: It rains every day. That is an unusual way to be able to start a report from a state so parched for the past ten years. And while the moisture is indeed welcome, the situation is fast becoming uncomfortable for beekeepers and farmers alike. We have had a very cool, backward spring which has delayed normal activities in the hive. The belated dandelion crop is very heavy, but daily rains prevent the bees taking advantage of this source of nectar. One beekeeper is seriously thinking of attempting to cross his bees with lightning bugs so they can work at night when it does not rain. This unsuitable working weather makes it doubly unfortunate because there has been very little fruit bloom. The extremely sudden freeze of last November 11 injured or killed many fruit trees in Nebraska. Only certain kinds of plum trees seem to have escaped, and this will help some. Usually at this time of year bridal wreath *(Spirea Van Houtte)* is white with bloom and the bees are busy on it. Unfortunately, most of these shrubs have had to be cut back just above the ground. We depend upon the dandelions and fruit bloom to build up colonies to full strength for the yellow sweet clover yield. Consequently, if daily rains continue beekeepers will have to feed extensively.

Condition of Bees: There has been little winter loss of bees in Nebraska. Bees came through in fine shape, due to a late fall which enabled the bees to cram their hives with aster and smartweed honey. The winter while not severe was steadily cold and prolonged so that early feeding was necessary in many cases.

Honey Market: Sales are fair to slow and prices unchanged.

Crop Prospects: Clovers have come through the winter in fine condition and are growing luxuriantly. As always when there is a forecast of fruit shortage, beekeepers expect a run on honey. Barring extreme reverses this looks like a good year to be in the beekeeping business. Many package bees have come in on the strength of this outlook.

Miscellaneous: Mary I. Barber, Kellogg's dietician, President of the American Dietetics Association, and one of the best known nutritionists in the country, has joined the ranks of the dollar-a-year folks. She has been loaned to the War Department, "for the duration" and supervises the planning of meals for the Army. She has long been an enthusiastic and friendly booster for honey. Now that the company mess sergeant orders his supplies and prepares his meals according to menus planned by Miss Barber, it will be interesting for the honey industry to follow the results. She can be of very real help to the beekeeping industry if she continues to boost honey now as she has in the past.—Benj. Nielsen, Aurora, Nebr.

GEORGIA, May 5.

Weather: This is May 5, and abnormal weather continues. People have not yet put on their spring straw hats. Early honey plants finally leaved out but did not bud and bloom. What did bloom yielded but little pollen, which played havoc with brood-rearing, especially since the first of March. About that time a little pollen started brood-rearing off normally but there was no nectar. Not much of the earliest vegetation was killed by frost and cold, but the honey plants were damaged badly. Brood-rearing went back to almost nothing. The old bees traveled in vain scouting all over the country and died in the fields. Dwindling was the most rapid we ever saw and still there is but little pick up and cold nights prevail with cloudy and windy weather.

Bees: Well, they have never been so much needed by honey producers, queen, and package men. Twenty per cent of colonies have died and seventy per cent of those remaining alive are so far below normal that no surplus honey will be secured. The weaker colonies are still dying on account of abnormal conditions. Well, it is alarming and discouraging to say the least. The losses occur mostly in the producing areas.

Honey Sales: The old crop, for the first time, was all cleaned up by the beginning of the year and the beekeepers were ready for contracts and signed up for a big crop with the honey brokers. The small crop in prospect will be meager when it comes to supplying the demand for southern chunk honey.

Miscellaneous: The demand for honey has been great and on the other hand the demand for beekeeper's supplies has been less than for some years back. The package men report that the demand for bees has been below normal and that the large buyers of package bees have been slow about sending in their orders. All this we don't understand. With a good demand for honey at low prices the question preeminent in the minds of the beekeepers is, will we get a better price for this small crop or will it move at last season's prices? —J. J. Wilder, Waycross, Ga.

PENNSYLVANIA, April 27.

Weather: The last part of the winter was not especially cold, temperatures continued around 30 degrees F. with little change from week to week. Extremes of temperature encourage early brood-rearing and since these extremes were lacking during February and March, queens were slow to start egg laying. As a result colonies were quite weak in early April.

About April 6 the weather began to get warm and continued warmer as the season advanced. By the middle of April, the weather was unseasonably warm with the thermometer climbing above 80 degrees. This warm weather brought out the early bloom with a rush. Brood-rearing started in earnest and conditions in general became quite favorable for the development of the colonies. By April 20, the bees had stored considerable quantities of honey from maple and other spring bloom. It is rarely that we have an early surplus flow from maple and many beekeepers did not realize what was happening until the flow was about over. Many colonies were, to be sure, too weak to gather any great quantity of nectar. The stronger colonies that were not given extra space soon became crowded and began to build queen cells, so that within a period of two weeks in April, the beekeeper stopped feeding starving colonies and found it necessary to add supers and even remove queen cells. The past week, however, has been much cooler and some colonies are tearing down the queen cells they built the week before. No swarms have been reported to date (April 27), but if the weather gets warm again, swarms may be expected in considerable numbers.

Conditions: The soil is quite dry at the present which is not too encouraging for a clover honey flow in June. The rainfall during May is, however, a more important factor than the rainfall in April.

The winter losses will be considerably smaller than they were last winter, possibly as high as 18 per cent. Most of the losses have been due to starvation and dysentery.—E. J. Anderson, State College, Pa.

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ONTARIO, May 3.

Weather: Following a March of steadily cold weather, April went into reverse. Reports just issued by the Toronto observatory established three new records, as being the warmest, driest and most cloudless April we have ever had in Ontario since records have been kept.

The first pollen was noticed on April 6 and nearly every day after bees were flying and getting some pollen and a little nectar. Naturally strong colonies boomed and brood-rearing is away ahead of other years. Early fruit trees are in bloom and so far this report sounds pretty optimistic. **BUT,** this morning, May 3, the thermometer reads "25 above" and early garden stuff and likely fruit bloom as well, will be killed.

Installing Packages: About the usual number of packages have arrived or are arriving, and early shipped packages will no doubt give best results this year. Some that we installed about the middle of April on five combs, when examined a short time ago to see how queens were doing, were actually crowded and more combs were given to give them room.

As to installing packages we are not at all orthodox, judging by what most writers advise, as to ways of placing package bees in the hive. To shake part of the bees into hive, and then place cage into space that was occupied by frames removed, means some bees lost by flying out, and others crushed by cage when it is put in the hive. In short, this is how we handle package bees and we have tried almost all known methods. If bees have syrup in tins on arrival we do no feeding before installing. In the evening we take the bees to the apiary where hives are all ready for them. Quietly we remove syrup tin and queen in cage and place cage with bees in the hive, where there is a comb of honey right next to package. Often we sprinkle a bit of syrup over the top of cage and combs. Queen is released and the hive closed, often without the loss of a single bee. In 99% of cases all bees will be on combs an hour or so later, and we leave them severely alone for a week or more. We find this the quickest and best way to do the job, but if you have a better way, by all means use it. Feeding the bees heavily while in the package is a sticky job as cages will be mussed up more or less no matter how carefully one may work. But the main reason we do not feed the bees in packages, unless no stores are present on arrival, is because we do not find that the feeding does the least bit of good in introducing as we do. Of course, if the bees are to be shaken in front of hives as some advise, feeding them would no doubt be beneficial.

Miscellaneous: For a few years the Ontario Beekeepers' Association has been giving insurance protection to its members against damage done to persons or property by their bees. For certain reasons the Association found it impossible to carry on this work and now the Ontario Honey Producers' Co-operative has made arrangements with a reliable insurance Company to insure any beekeeper in Canada (not in Ontario only) for the small sum of $1.00 per apiary.

We feel personally, that this is a move that should be supported by every beekeeper for naturally it depends upon the support given, as to whether the insurance company will be able to carry on indefinitely on these terms. In order to emphasize just what this dollar per apiary charge gives in the way of protection, we quote from receipt given me for money sent for said insurance.

"Cover Afforded by Policies

"Property Damage: Actual value of property damaged in no event to exceed $1000.00 for one accident. In every case the first $25.00 is payable by the insured.

"Public Liability: Bodily injuries or death to one person, claims not to exceed $5000.00. Bodily injuries or death to more than one person, claims not to exceed $10,000. Send dollar per apiary to Ontario Honey Producers' Co-operative, 5 Defries St., Toronto."

We think the premium of $1.00 is a very low figure for so much protection. What do you fellow beekeepers think about it?

Nothing has been said about markets and market prospects for honey for this year but as stated in previous issues of Gleanings recently, there is nothing to say unless we wish to speculate a bit and that would be futile on my part.—J. L. Byer, Markham, Ont., Can.

Spinster

We seem to be getting our March weather in May. April brought its full quota of tears, after all,—copious, and drenching rains, and now we are having quite heavy white frosts every night, and chilly winds every day. The frosts aren't harming anything, apparently. Wild plum trees are white with bloom, as are wild strawberries, blueberries, and bilberries. Hawthorns are still only in bud, and even the hardy dandelions are holding out on us, being found blooming only in the more sheltered places. All of which means feeding the bees awhile longer, and with sugar worth $8.50 per hundred pounds, this is no small item to reckon with.

Those with light soils have their gardens in, but with us, the land is still cold, being clay. When once it warms up, growth is quick and luxuriant, and should make up for the delayed beginning.

These chilly winds play havoc with too-industrious bees. We have picked up several dead ones, just where they dropped near the entrance to their hive, loaded down with the precious pollen they gave their lives to carry home to feed their young.

Why is it that hives with a laying-worker acting as queen never amount to anything until a real queen supersedes her? Do the bees think, "Shucks! She is no better than we are. Why should we work to keep her in idleness, when she raises only a lot of useless drones, to eat up all our profit?" Are bees democratic? They adore royalty. In fact, so do all we of Britain's overseas dominions, but our royalty is as strongly democratic as are the presidents of democratic countries and with not half the power presidents have.

We all abhor dictators. We all, as democrats, want government by the people and for the people. Now, can it be that a laying worker is simply a bee, posing as a dictator, and quite as unfit to rule the hive as are certain men, posing as all-powerful dictators? The only difference is, dictators are feared. Laying workers are not. They cannot inspire fear, nor can they force the bees that resent them to work for or under them. Have these little females more spunk than men? They loiter or refuse to become busy slaves,—easier for them than for humans in like predicament.

Boy, here, united one such inactive, resentful bunch of queenless bees with a stronger hive, by the newspaper method, and they died, rather than exert themselves to gnaw their way through to food and safety. They had lost all spirit and vim, had become hopeless. Had there been a queen over them and only recently lost, they would have had considerable vigor remaining and would have exerted themselves rather than perish.

It looks as if there will be an abundance of clover blooms later on. Clover is growing luxuriantly, especially alsike and sweet clover, which do not mind wet feet.

Everywhere we hear the slogan, "Produce and Conserve", and I know our bees will be a big factor in production in our garden. There will be more, bigger and better fruits, more cucumbers, pumpkins, melons. The conserving is up to the women of the home. We must emulate the bees, and tirelessly gather and glean, can and preserve, then carefully store for the day of need which must surely come. We will need food for ourselves, food for our fighting men, food for those who lose all through bombings, food for our prisoners, and there may be a scarcity in spite of our best efforts. And besides making more productive gardens, our bees may yet be the biggest source of our supply of "sweets". Sugar may yet be beyond our means to buy. It may be even difficult to obtain, should war develop on our side of the Atlantic. Bees may yet become invaluable.—Spinster Jane.

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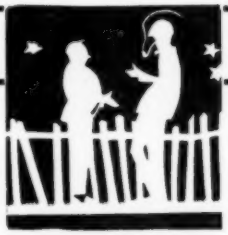
Honey for Grapefruit

In serving grapefruit, some restaurants use honey instead of sugar to sweeten it. The honey not only penetrates the fruit but also permeates it, making a mild, pleasant taste whereas with sugar, the top part is sweet and the rest tart or sour. Try it.—Joe Gabrielsen, Graettinger, Ia.

Jane Says;

Asked and  Answered

Pollen Substitute

Question.—I am reading with much interest each issue of Gleanings as soon as it arrives here and one of the things that did interest me most was the pollen problem, which appeared sometime lately. I should have liked to try it out but unfortunately I cannot get any soy-bean flour for the time being. So I should like to give you my idea for a trial. I think the greatest difficulty is to make the bees accept this soy-bean flour and as I found out lastly pollen is gathered and later on given to the bees mixed up with the flour. This of course may be good, but I think it to be a somewhat troublesome work. If my idea would be good it would become easier. I also thought that soy-bean flour alone would not do and would propose to add skimmed-milk powder, which also contains much proteins. From my experience as a backlot beekeeper in Germany I know that commercial beekeepers sometimes add a mixture called "Salvolat" to the stimulating sugar syrup they give in spring thus stimulating egg-laying much more than without it. This mixture is composed of: 330 parts of liquid ammonia, 650 parts alcohol 96%, 5 parts each of lemon-oil, marjoram-oil, cloves-oil and macis-oil. (I cannot find out the real English name for macis-oil, it seems to be nutmeg-oil.) It is not known which one of the ingredients is stimulating egg-laying but that could be found out. I should have made cakes of soy-bean flour, milk powder, fine sugar, and honey and have given it to the bees in spring when there is not yet enough pollen coming in. Care would have to be taken against robbing, as Salvolat induces the bees to rob if left outside the hives. If those cakes are taken and good as a pollen substitute, it should be found out the parts of Salvolat that are necessary so as to avoid to have to make a mixture of things that are not necessary.—Felix Bloch, Karkur, Palestine.

Answer.—We have had no experience with feeding any of the ingredients which make up the "Salvolat" formula. We have recognized a serious shortage of pollen reserves for the proper over-wintering of colonies and in building new colonies from package bees in the spring. In the course of our experiments we have found that soy-bean flour has a nutrient material which can be utilized by the bees but it is apparently lacking in some substance found in pollen that is essential in brood food. When 25% pollen is mixed with 75% soy-bean flour (manufacturer's analysis, 50 to 52% pollen, .5 to 1% fat, 1 to 3% fiber and 7 to 8% moisture). The bees will utilize this material and rear a satisfactory amount of brood before pollen becomes available from the field. One-third dry material of the pollen and soy-bean mixture are added to two-thirds 65% sugar syrup to form a moist dough-like cake which is spread out directly over the cluster and covered with a wax paper to prevent drying on the surface. To obtain pollen for mixing with the flour, we utilize the pollen trap on the entrance of a good colony. The trap consists of a folded piece of hardware cloth, 5-mesh to the inch, through which the bees must pass. They scrape the pollen from their hind legs on this grid and it falls into a tray directly underneath. The pollen is removed from the tray every one to three days and air dried for storage until needed for feeding the following year. A good colony under our conditions may yield better than 20 pounds of dried pollen during the summer. This amount of pollen mixed with 75% soy-bean flour provides protein foods sufficient to rear from 10 to 12,000 bees in 50 colonies. We have prepared a manuscript describing the use of pollen traps and feeding pollen supplements for developing honeybee colonies for publication as a Bureau circular.—C. L. Farrar.

Getting Partially Filled Combs Cleaned

Question.—Please tell me if I can use combs that were not capped, but partially filled with honey, that has sugared. Would the bees clean these out this coming spring if put in the hive; and would it hurt them to do this?—L. Lloyd Van Epps, Ohio.

Answer.—Yes, it is possible to use combs containing honey that is partially granulated, to put into hives for bee food this coming spring. After warm weather comes, granulated honey will liquefy and become available for the bees. You should not put too many combs of granulated honey into one hive of bees. If your colonies happen to need feeding, this additional food will stimulate the queen to lay more eggs. If you simply wish to get the partially filled combs cleaned up, place a super containing such combs, under a brood chamber, or, directly on the bottom board quite early in the spring. The bees are likely to carry the honey from the partially filled combs into the brood chamber above, to be used for feeding brood.

Talks to Beekeepers

M. J. Deyell

The Biggest Swarm I Ever Saw

The month of June is usually swarming time in the North. There is something mysterious and fascinating about the issuing of a swarm of bees. When five or six swarms come out about the same time, as happened with me in Northern Michigan some years ago, the owner gets excited.

Three of the swarms united into one enormous cluster on the lower limb of an apple tree. I prepared a three-story ten-frame hive for the swarm, then attempted to shake the bees into a two bushel basket. The swarm was so heavy that the basket slipped out of my hands and bees were scattered about on the ground. I finally got them into the hive which contained a comb of brood to make their new home attractive.

Five days later while eating noon lunch we heard an unusual roar in the direction of the apiary and on looking out we saw the large swarm circling above the apiary. Apparently the bees didn't care for their new home. They must have sent out scouts in advance, for the swarm moved slowly south toward a large swamp a mile from the apiary. I grabbed my smoker and a large wash tub, cranked up the old Model-T and started after the bees. The swarm traveled about fifteen miles an hour parallel with the road. I could almost touch some of the bees as I kept along side of them in the old Ford. When the bees reached the swamp and disappeared among the trees I gave up the chase and lost the largest swarm I have ever seen.

When I hear a commercial beekeeper say that he hasn't had a swarm during a season. I usually take what he says with a grain of salt.. If this beekeeper has out-apiaries, what he really means is that he hasn't seen any swarms leave. In commercial beekeeping it is practically impossible to absolutely prevent some swarming, especially during seasons when swarming conditions prevail. A beekeeper with a relatively small number of colonies may control swarming by applying certain colony manipulations.

A Trick in Hiving a Swarm

A two-bushel basket with a wire handle is a handy thing to have on hand when a swarm is found on the lower limb of a tree. Fasten the handle of the basket to the limb of the tree by means of the wire, then hold the basket under the swarm and give the limb a vigorous shake in order to dislodge the bees. The basket is then allowed to hang by one handle. The swarm will cluster in the upper side of the basket as it hangs sidewise. After the flying bees have settled down unfasten the wire, and carry the swarm to the hive. When dumping the bees in front of the hive, leave the basket upside down in front until most of the bees have entered the hive. This prevents the bulk of the bees from flying away from the hive entrance when dumped in front.

Clipping Queens' Wings

Many beekeepers practice clipping queens' wings to prevent their flying away with swarms. It is an advantage to be on hand to catch the clipped queen as she comes out with the swarm. She may be placed in a cage temporarily and thrust into the hive entrance. The bees will, of course, return to the hive. It is then necessary to destroy queen cells and perhaps remove some combs of brood from the brood chamber into a super above to relieve congestion below, before releasing the queen.

A Little Trick Worth Trying

This trick was passed on to me in 1917, by Samuel Coulthard, one of the most successful comb-honey producers of Michigan, when I bought 210 colonies from him.

When a clipped queen is caged, destroy all cells but one and place

the caged queen in the upper super, between combs, if producing extracted honey, or beside the follower board, if producing comb honey. Leave the old queen until a young queen is produced below. I have tried this many times in Michigan and have never had a colony attempt to swarm the second time. In some instances the old queen was left above for two months. The bees fed her through the wire screen. This plan keeps the working force undivided and results in more surplus than when the swarm is separated from the bees in the parent hive. I would be glad to hear from those who may have tried this method.

Keeping a Step Ahead of the Bees

This was mentioned editorially in the last issue of Gleanings. It is easier said than done. In producing extracted honey swarming can be controlled to a large extent by keeping ahead of the bees. Some wait until strong colonies become congested with nectar and pollen before putting on supers. Why wait so long? It is much better to put on supers a little too early rather than a little too late, to avoid congestion.

An Experience in 1938

I'll never forget that season. The spring was cold and backward. We put on one set of supers during the fruit bloom. The latter part of May we made a trip to Western Ohio to put on the second supers. The day was so cold that I was tempted to pile the supers up beside the yard to be put on later. However, we put them on and it was a good thing we did, because the weather turned warm and the yellow sweet clover began yielding May 28, the earliest I have ever seen it yield. Well, those populous colonies went to work in earnest and when we visited the apiaries to put on the third supers about June 11, the first supers were filled and the second supers were almost half filled so we put more **on top.** If we had failed to put the second set of supers on when we did, the colonies would have been crowded and swarming cells would have been started. It is amazing what very populous colonies will do in storing surplus honey if given adequate **comb space** which means supers in plenty of time. So let's try to keep ahead of the bees this season.

A Good Pollen Flow this Spring

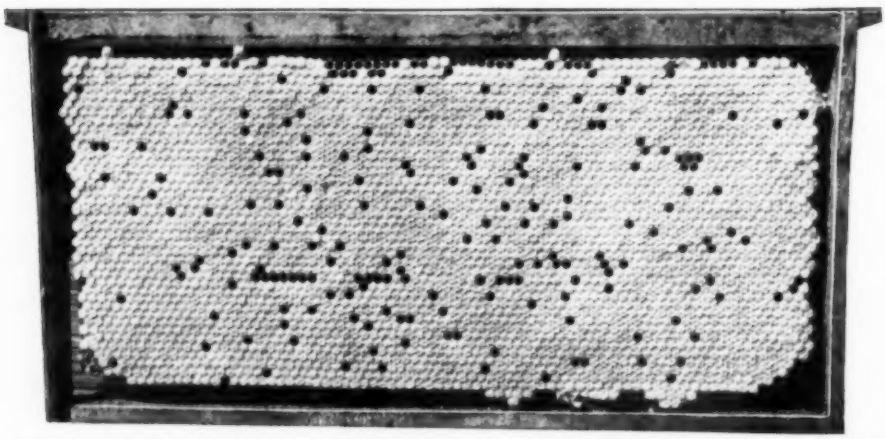
Some of our field station men, Mr. Todd of Davis, Calif., and Mr. Farrar of Madison, Wis., have been preaching pollen and among other things they have brought out the fact that approximately one pound of pollen is needed to produce one pound of bees which, by the way, is around 3500 bees instead of 5000. (See editorial, page 96, 1940 Gleanings.)

This spring we had an unusual flow of pollen in this area. Colonies built up rapidly, in fact, they were stronger in brood during late April than I have ever seen them at that season. It was not uncommon to find double-story colonies with brood in from twelve to fifteen combs.

We Try Some Experiments

Space will not permit my going in-

(Continued on page 404)



A comb consisting of almost 100% worker cells and not a single cell of honey. This picture was taken at the height of the 1940 season.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 10th of month preceding.

HONEY FOR SALE

WHITE CLOVER extracted honey. Lewis Klaty, Carsonville, Mich.

NEW COMB and extracted in season. H. G. Quirin, Bellevue, Ohio.

EXTRA QUALITY clover extracted. Howard Grimble, Holcomb, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, Ohio.

CLOVER extracted, extra white, new sixties. Irvin Van Devier, Medina, Ohio.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

CHOICE white clover and light amber honey in new 60's. Noah Bordner, Holgate, Ohio.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

EXTRACTED clover and amber honey. Quotations on request. Scott Traxler, Scottsburg, N. Y.

TUPELO HONEY, new 60's and barrels, 5 and 10-lb. buckets. Marks Tupelo Honey Co., Apalachicola, Fla.

MICHIGAN White Extracted in 60's. Strictly high grade in new cans. M. H. Hunt & Son, Lansing, Mich.

FINEST QUALITY white clover honey, $7.00 per case, 120 lbs. Sample 10c. Arthur Thayer & Sons, Freeland, Mich.

SOME extracted in sixties left but all comb and chunk is sold until new crop. Herman Crowther, Cass City, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

LET US show you how you can save on your honey purchases. We also buy honey. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

FRUIT BLOOM comb honey $2.75 case; Extracted, 6c lb.; White clover, 7c; 3 case lots, 6½c; Buckwheat, 5c. C. B. Howard, Geneva, N. Y.

SOLD OUT. Our new 1941 crop of Michigan clover honey should be extracted, and ready for the market next July. Write us your next season's needs. E. D. TOWNSEND & SONS, Northstar, Michigan.

SELECT LOTS white clover, buckwheat, basswood, and light amber honeys in 60-lb. tins. A. I. Root Co., 224 West Huron Street, Chicago, Illinois.

IOWA white extracted honey in new sixties. One can or a carload. Satisfaction guaranteed and the price is right. Sample ten cents. Harry C. Kirk, Armstrong, Iowa.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

NEW YORK State Comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE.—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

WANTED—Carlots honey; state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

HIGHEST cash returns made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Ky.

WANTED—White and amber extracted honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

FOR SALE

QUEENBEE PAINTING outfits $1.00 postpaid. Southwick Apiaries, Waban, Massachusetts.

USED HONEY cans 15c each, pairs in shipping cases 40c pair. Lose Bros., 206 E. Jefferson, Louisville, Ky.

BEST QUALITY queen mailing cages, freight paid. Free sample. Bee shipping cages. Vernon Homer, Rt. 5, Menomonie, Wis.

YORK'S

Package Bees and Queens

Quality-bred Italians

Untested queens, 60c each; 25 or more, 50c each. Tested queens, double price of untested.

2-lb. pkgs. bees with queens, ...$2.00 each
3-lb. pkgs. bees with queens, ... 2.50 each

Adverse weather conditions retarded production considerably on early bees and large demand taxed us to capacity. However, this is overcome and we are prepared to fill your orders without delay. Full weights, young bees, safe arrival, and satisfaction guaranteed.

YORK BEE COMPANY

Jesup, Georgia. U. S. A.

(The Universal Apiaries)

Italian Bees and Queens

Vigorous honey-making kind.
The best for less.
Satisfaction guaranteed.
Why not try us?

2-lb. pkg. with queen each, ...$1.50
3-lb. pkg. with queen each, ... 2.05
4-lb. pkg. with queen each, ... 2.75
Queens, each, ... .40

Homan Bros., Shannon, Miss.

HELLO, FOLKS!

Here We Are Again.

Stevenson's Line-bred Goldens

Should you try us I'm sure you'll like us for we are really GOOD.

2-lb. pkgs. with queens, $1.85; 3-lb., $2.45. Queens, 50c. Dealer's discount, 15%.

Write to STEVENSON'S APIARIES,
Westwego, La., for descriptive circular.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

USED 60-lb. honey cans. 2 cans, case, 35c. Leon Short, Zion, Ill.

FOR SALE—Used 4-Frame Buckeye Extractor with 12" pockets. Price $40.00. Tom Atkinson, Route 5, Fort Crook Blvd., Omaha, Nebr.

CUT COMB HONEY—Cartons and equipment. Get our prices on everything for cut comb honey. James Hilbert, Traverse City, Michigan.

ATTRACTIVE prices on bee supplies and comb foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE—Slightly used 60-lb. cans, perfect condition, write for prices, any quantity. Will buy your honey crop in these cans. Cloverdale Apiaries, Fredonia, N. Y.

WAX worked into high quality medium brood foundation, 15c pound; 100 lbs., $10.00; thin super, 22c. Medium brood foundation, 10 lbs., $4.50. Fred Peterson, Alden, Iowa.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Michigan.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

FOR SALE—We accumulate bee supplies at our warehouses, slightly shopworn and fully serviceable, but discontinued for lack of sale. Write for complete bargain list. G. B. Lewis Company, Watertown, Wisconsin.

THE ONLY complete line of wax rendering equipment ever offered—the "Perfection" Line. A size and type suitable for every commercial beekeeper. Write for descriptive circular. Robinson's Wax Works, Mayville, N. Y.

FOR SALE—Fine quality queen mailing cages; Root quality bee supplies, both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Mich.

SAVE MONEY by letting us work your wax into wired or regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices, as we have no agents. Walter Kelley Co., Paducah, Kentucky.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS. W. G. Lauver, Middletown, Pa.

ONE 75c three-band Italian queen free to every new customer. L. H. Wagoner, Elon College, N. C.

EXTRA QUALITY bright Italian queens, 35 cents each. Any number. D. W. Howell, Shellman, Georgia.

SIX STRONG COLONIES of bees. Extra supers. Inspection certificate furnished at time of sale. Fred Reineck, Gibsonburg, Ohio.

OVER WEIGHT packages and young queens at a price you can afford to pay. I can fill your early orders. D. P. Green, Deland, Fla.

WILL SELL 150 two-story colonies of Italian bees. Young queens, ten frame equipment. First class condition. F. J. Jones, Sauquoit, N. Y.

GOLDEN ITALIAN bees and queens, extra good workers and very beautiful to look at. Queens 50c each, any number. Carolina Bee Farm, Graham, N. C.

FOR SALE—Twenty colonies bees, 10-frame two-story hives. Guaranteed disease free. Afternoons or week-ends. W. J. Brooks, Box 161, Sherburne, N. Y.

CAUCASIAN package bees and queens after June 1st: 2-lb. pkg. bees, $1.60; 3-lb. pkg. bees, $2.00; untested queens, 40c each. Lewis & Tillery Bee Co., Greenville, Ala.

GOLDEN QUEENS—Excellent quality. Hardy, gentle, productive, health certificate, satisfaction guaranteed, 50c. O. E. Brown, Route 1, Asheboro, North Carolina.

REDUCED prices on Caucasian package bees. 2-lb. package bees with queen, $1.50; 3-lb. package with queen, $2.00; queens, 40c each. Full weight, safe arrival, and satisfaction guaranteed. P. B. Skinner Bee Co., Greenville, Ala.

CAUCASIANS—Tested queens, $2; untested, $1; 10, 75c; 50, 65c; 2-lb. packages with queens, $2; 3-lb. packages, $2.50. Miller's Caucasian Apiaries, Three Rivers, Texas. Oldest exclusive Caucasian breeders west of the Mississippi.

CHOICE BRIGHT Italian queens that are a pleasure to work with. This stock has been bred and selected in the North the past 37 years, for good winterers, hustlers, and gentleness. Price 65c each and $7.00 a doz. Emil W. Gutekunst, Colden, N. Y.

EARLY PACKAGE BEES—Prompt shipment begins May 1. Two-pound package bees and queen, $2.45; 3 lbs. $3.15. Add 25c postage for each package. Choice Italian queen, 75c. Safe arrival guaranteed. Birdie M. Hartle, Reynoldsville, Jeff Co., Pa.

EXTRA YELLOW Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested, 50c each; tested, $1.00. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C. Rt. 2.

NORTHERN BRED, leather-colored Italian Queens, 35c, 3 for $1.00 in adjustable introducing cage. We cooperate with good honey producers in the selection of our breeding queens and believe our stock to be as good as you can buy. Diemer Bee Co., Liberty, Mo.

FOR STRONGER COLONIES, bigger honey crops, and gentler bees, try our prolific well-bred 3-banded Italian queens used for years by leading beekeepers of the U. S. and Canada. Select young laying queens, 50 cents each; ten, 45 cents each; twenty or more, 40 cents each. Prompt deliveries, no disease. We have one of the largest best equipped queen rearing places in the South. H. C. Short, Fitzpatrick, Ala.

"JUNE SPECIAL"—One pkg. FREE with every five ordered. Quality "Honey girl" Italian bees and queens. Gentle, Hardy, Unsurpassed for honey production. Comb packages—Queen introduced on comb of brood, 2 lbs. bees, one comb brood, queen introduced $2.25. Combless packages—Queen caged, 2 lbs. bees with queen, $2.00. Queens alone, 50c. Additional pound bees, add 50c. Additional Comb—add 50c. No disease—Health Certificate—High Quality—Prompt Service—Safe Arrival Guaranteed. A. D. St. Romain, Apiaries, Diamond, Louisiana.

Mack's Queens

(They Speak for Themselves)

They are Hardy Northern-bred 3-band Italians. All our cells are started and finished in queen-right colonies—Nature's own and best method. They are honey fed and have over a quarter of a century back of their Superior Qualities. That's why Mack says, "They Speak for Themselves". Fully guaranteed and priced at

50c each; 10 or more, 40c each.

Herman McConnell

The Bee & Honey Man

Robinson, Rte. 2, Illinois

Mott's Northern Bred Italians

Loose Queen packages, 2 lb., $1.90; 3 lb., $2.40; Mott's strain in the south. Northern reared, 1, $1.00; 2 or more, 75c each. Guaranteed purely mated or replaced. Virgins (day-old queens) 3 for $1.00. Breeders, $3.00, $5.00, $10.00 each.

Satisfaction Guaranteed. U. S. A. value.

E. E. MOTT, Glenwood, Mich.

LEST YOU FORGET

the good rule to go by. Buy your

Italian Bees and Queens

from

Alabama Apiaries, Mt. Pleasant, Ala.

2-lb. packages with queen, ... $1.75
3-lb. packages with queen, ... 2.25
Queens, ... .50

No order too small or too large. We are in position to make prompt shipments. Our aim—once a customer always a customer.

HOLLOPETER'S ITALIAN QUEENS

Carefully bred from hardy, disease-resistant, high average honey storers' stock. Untested, light or dark strain, 60c each; 2 or more, 50c each. Tested, $1.50 each; breeding queen, $5.00.

WHITE PINE BEE FARMS
Rockton, Pa., Box 80.
(With Gleanings from 1911)

CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers,—10% to 40% ahead of Italians. Foundation stock from mountainous region of Terek, Caucasus.

CARNIOLANS

Prolific at all times, very gentle, best of winterers, build beautifully white combs, most excellent workers. My. Carniolans were used in the recent Iowa Experiment Station test showing Carniolans best for Northern and Western conditions. Have supplied many other Agricultural Colleges and Experiment Stations with them. 34th year with them. Ask for free paper telling more about both races.

Prices: Untested queens, 1 to 5, 60c each; 6 or more, 50c each. Tested, $1.00 each.

By airmail, 5c extra per queen.

ALBERT G. HANN
Glen Gardner, New Jersey

Moore's Strain

LEATHER COLORED ITALIAN QUEENS— SUPERIOR STOCK

50c each

World-wide reputation for honey-gathering, hardiness, gentleness, etc., since 1879. Safe arrival and satisfaction guaranteed. Circular free.

J. P. Moore

R. 3, Falmouth, Ky.
Former address, Morgan, Ky.

THREE-BANDED ITALIAN BEES

and queens of extra fine quality. Good honey-gatherers and are also gentle to work with. Satisfaction guaranteed. We have never had any disease of any kind. 2-lb. package with queen, $1.95; 3-lb. package with queen, $2.50. Untested queens, 50c each, any number. We allow all dealers 15% discount.

ALAMANCE BEE COMPANY
Geo. E. Curtis, Mgr., Graham, N. C.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

CIDER MILLS

CIDER TIME, Free, How to keep cider sweet, make vinegar quickly, money from cull apples. Presses, Graters, Filters, Supplies. Honey and sweet cider make an excellent roadside combination. Palmer Bros., Cos Cob, Conn.

HELP WANTED

WANTED—Experienced man at once, outside draft. Fred D. Lamkin. Union Springs, N. Y.

WANTED—Experienced man to work bees. State salary and experience. John Kneser, Route 1, Hales Corners, Wis.

WANTED—Experienced man at once for remainder of season. Give full details and wages expected. R. E. Ressler, Willmar, Minn.

POSITION WANTED

EXPERIENCED young apiarist looking for work to put himself through college. Write for references. J. Sloan, 362 Laurel Avenue, Highland Park, Illinois.

MISCELLANEOUS

WANTED—Wood-working shop or bee hive and frame-making machinery. Also bee outfit. Central states. Address: Post-office, Box 454, Chicago, Illinois.

MAGAZINES

MICHIGAN BEEKEEPER—Nation-wide circulation. Published monthly. 75c a year. MICHIGAN BEEKEEPER, Rt. 3, Lansing, Mich.

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7c6d. Apply Editor, Indian Bee Journal. Jeolikote, Dist. Nainital U. P. India.

READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa.

MANY beekeepers have proven raising fox, mink, nutria, muskrats, rabbits, highly profitable. Send dime for sample copy Canada's oldest fur farming magazine telling how. Fur Trade Journal of Canada, Box 31, Toronto, 2, Ontario.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingworth. The Way's End, Foxton, Royston, Herts, England.

SPAULDING'S Package Bees and Queens. Summer prices. Day old virgins, 5-$1.00. Lewis Spaulding, R. 3, Box 1508, St. Petersburg, Fla.

CARNIOLAN QUEENS

3 for $1.00 postpaid Airmail, 5c per queen extra.

EPHARDT'S HONEY FARMS, TORRAS, LOUISIANA

Queens that are QUEENS

We have been producing and selling queens for over 60 years. The late A. I. Root paid $20.00 for his first Italian queen in 1865.

We hope to have young laying queens from our basswood queen-rearing yard by June 15.

—Prices—

1-10, 75c ea. 11 or over, 70c ea.

Outside of U. S. A. and Canada the price is $1.00 ea. regardless of quantity. (Air express or air mail charges extra).

The A. I. Root Company
Medina, Ohio

KNIGHT'S

Leather Colored Italian Queens

The Best Honey-Gatherers

Prices: 50c each; 25 or more, 45c each.

All queens guaranteed mated pure. No charge for clipping.

JASPER KNIGHT
HAYNEVILLE, ALA.

JENSEN'S

"Magnolia State" Strain Three-Banded Italians Deliver the Goods

Queens bred primarily for High Production of Honey

They transmit the other most essential qualities to their off-spring: Gentleness, Hardiness, and Uniformity. Pure Mating Guaranteed.

A New York customer writes: "In spite of a very hard winter here in the North, your bees have wintered very good for me, with a loss of about 5%".

An Ontario customer writes: "The package bees I got from you last year did very good. Of the sixty packages received, I had sixty queens laying in a week's time. Enclosed is my order for fifty more".

An Idaho customer writes: "Can you ship me fifty untested three-banded Italian queens on April 26th? These queens must be of your own breeding and stock only; no substitutes".

June 1st. through Summer prices:
1- 12, $0.50 each)
13- 50, .45 each)
51- 100, .40 each)
101-1000, .35 each)

Select Tested, best from our annual requeening, 50c each while they last. Orders filled in rotation.

JENSEN'S APIARIES, MACON, MISSISSIPPI, U. S. A.

Our slogan: "There is no substitute for quality".

FOR SALE!

Italian Bees and Queens. Nothing but the best. Bright yellow and three-band.

Queens, 40c each

1-lb. bees with young queen, .. $1.00
2-lb. bees with young queen, .. 1.50
3-lb. bees with young queen, .. 2.00

You send for them, they go.

Graydon Bros.

Rt. 2. Greenville, Ala.

QUALITY Three-banded Italian BEES AND QUEENS

Highest quality, young bees, good workers, large capacity.

2-lb. pkg. with queen, ...$1.90
3-lb. pkg. with queen, ... 2.45

Live delivery, prompt service and satisfaction guaranteed.

Book your orders as soon as possible. It helps us to serve you.

W. O. GIBBS
WILLACOOCHEE, GA.

Palmetto Quality Queens

Three-band Italians of Finest Quality. Can furnish foulbrood resistant queens. Prices, 1 to 5 queens, 35c each; 6 to 20 at the rate of 3 for $1.00. More than 20, 30c each. No disease.

C. G. ELLISON & SONS
Belton, S. C.

"She-suits-me" queens, 3-banded Italians, most excellent strain: One queen, 75c, 3 queens, $2.00. Stamps accepted for single queen.

Koolairy veil, $1.50 postpaid, SAFIN queen cage, $1, for ten; 15c for one.

ALLEN LATHAM
Norwichtown, Conn.

PACKAGE BEES AND QUEENS

Bright Three-banded Italians. Our Breeding stock is reared and wintered in Mich.

2-lb. loose queen package, ...$1.75
with caged queen, ... 1.60
3-lb. loose queen package, ... 2.15
with caged queen, ... 2.00
Queens, ... .40

TAYLOR APIARIES
Box 243, Luverne, Ala.

Bright Italian Queens

By Return Mail

Owing to our breeding and selecting method we have a bright strain of Italian bees that swarm less, build up fast, and are good honey-gatherers. If honey is your object order NORMAN'S QUEENS. All queens are guaranteed to be purely mated and to give perfect satisfaction or your money back. Young laying queens, 35c or 3 for $1.00; Tested queens, 60c each. 2-lb. package with young laying queen, $1.50 each; 3-lb. with queen, $1.95 each. Packages by express F.O.B. Queens by parcel post, postage paid. State Inspection Certificate. No stamps accepted.

NORMAN BEE CO., Ramer, Ala.

Fine Young Italian Queens

from our selected Northern stock. Queens reared under ideal conditions.

Unlimited supply. Queens, 50c each.
Write for discount on large orders.

YOU MUST BE SATISFIED

Lawrence Pritchard, Queen breeder.

PRITCHARD APIARIES
Sylvester, Ga.

GASPARD'S QUALITY

June Prices:

2-lb. package with queen, ...$1.40
3-lb. package with queen, ... 1.85
4-lb. package with queen, ... 2.25
Young untested queens, each .. .40

Address J. L. GASPARD
Hessmer, La.

Smith's Bees and Queens

The following will be our prices the remainder of this season. If you want the BEST in packages and queens order from us. A guarantee of satisfaction backs each order.

Three-lb. pkgs. with queens, 1-9, $2.00; 10 or more, $1.90; Two-pound packages with queens, 1-9, $1.50; 10 or more, $1.40. Selected queens, 1-9, 45c; 10 or more, 40c. Try some and be convinced that we supply the best only.

N. B. SMITH & CO.
Calhoun, Alabama

Quick Delivery

of

Root QUALITY BEE SUPPLIES

Ample stocks are on hand to assure your orders will be shipped at once.

The finest of transportation facilities will speed your order to you. Air-express, Rail-express, Parcel Post, Freight by eight railroads and hundreds of trucks serve Council Bluffs.

Send that Rush Order to

The A. I. Root Company of Iowa

Council Bluffs, Iowa

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

SPOERRI'S GOLDENS

Used in every state of the Union
Telling you how good they are is no proof—Ask your neighbor or the man who owns them, SEE FOR YOURSELF.

QUEENS, 60c—6 and over 50c.

2-lb. package with queen, ...$2.00
3-lb. package with queen, ... 2.60

SPOERRI APIARIES,
St. Bernard P. O., La.

Queens

35c; 3 for $1.00

By return mail

BRIGHT 3-BANDED ITALIANS

At this low price, **NOW** is the time to requeen with the best Italian queens of proven quality. You will have less winter loss, better colonies next spring. Our twenty years of experience assures you of the best stock money can buy. Safe arrival and satisfaction guaranteed in every respect.

2-lb. pkg. with queen, ...$1.50
3-lb. pkg. with queen, ... 2.00

Add two pounds of bees to your weak colonies and note the extra honey stored.
Packages F.O.B. Express.

NORMAN BROS. APIARIES
Ramer, Ala.

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Among Your Beekeeping Friends

A number of persons have written us for our offer to reliable persons. However, we still have a few localities where the right person can secure a number of subscriptions.
Write for sample copies.
Give references.

Circulation Manager
Gleanings in Bee Culture
Medina, Ohio

To New York State Beekeepers:

Located right in the center of the great Empire State with a full line of ROOT QUALITY supplies, also HONEY CONTAINERS of all kinds. In fact everything a beekeeper needs. We are always prepared to give you the best Service when you need it most.

Special Discounts on Large Orders

We also render old combs and cappings and pay top prices for wax.

It is our pleasure to help you with your beekeeping problems. WRITE OR CALL AT OUR OFFICE. YOU ARE ALWAYS WELCOME.

A. I. Root Co. of Syracuse

Midland Ave. and Tallman St.
SYRACUSE, N. Y.

Serves You Best

TALKS TO BEEKEEPERS

(Continued from page 396)

to the details of our experiments in this talk. I will mention only two.

On a number of colonies we raised the upper brood chamber and placed an empty extracting super between the two chambers. The queen was left in the lower chamber below a queen excluder. A piece of queen excluder zinc was placed over the opening in the inner cover which was placed directly under the upper brood chamber. The small opening left in the upper chamber faced in the opposite direction from the main entrance. This was done to help prevent the virgin queen mating out of the upper brood chamber from entering the lower chamber.

This is not only one method of getting a young queen reared in the third story but it is also a swarm-control measure. We intend to let the young queen above lay at least one cycle of brood before the upper chamber is let down to its former position onto the lower chamber when the main flow is well started. The old queen is likely to be disposed of and the young queen retained. Thus requeening without dequeening is accomplished.

QUEENS---Garon's Progeny-Test Three-Banded Italians
QUEENS---Garon's Daughters of Stock Bred for Resistance to A.F.B.

Deal where best quality is always assured. Where every effort is made to improve our stock and Better Service a By-word.

Prices including queens:

	2-lb. Pkgs.	3-lb. Pkgs.	Queens
1 to 25	$1.75	$2.10	$0.40
26 up	1.70	2.00	.35

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"Bred for Honey Production"

Queens are carefully raised from good producing stock. Our Northern location means you get queens sooner with less chance of damage in shipment. Write for mid-season package prices.

QUEENS, 50c each

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Pettit's Booster Bees--are the thing

to make those weak colonies or early packages really produce a crop of honey. If you don't believe it ask any of the beekeepers who bought two tons of them last May and June. . . Look at these attractive prices for shipments starting around May 20th, shipping right on through June.

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Quantity	Twos Each	Threes Each	Fours Each	Fives Each	Queens Extra
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12-23	1.30	1.80	2.30	2.80	.50
24-49	1.20	1.65	2.10	2.55	.45
50-Up	1.10	1.50	1.90	2.30	.40

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Select Untested Queens, 40c each. Lots of 10, 35c each.

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Better-bred Queens Three-banded Italians

We are sure you know, but let us remind you how essential a good young queen is in your colonies. Our "Better-bred Stock" is as good as money can buy.

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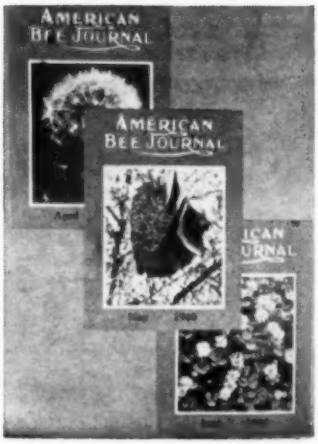

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We do not believe you can beat these prices when you consider MERRILL'S QUALITY BEES and QUEENS as they have stood the test for more than 30 years. They will please you, try them.

2-lb. pkgs., with queens, $1.50
Any number.
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Any number.
Untested queens, 35c, or
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Good Italian stock and
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Choice Italian queens raised here at Troy, Ont., Can. Sent by return mail, postpaid at 50c each. Tested, $1.00. All kinds of quality Bee Supplies at reasonable prices.

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QUEENS that are Second to None

Italians Caucasians

1 to 25	$ .50 each
26 to 99	.45 each
100 or more	.40 each

No disease.
Satisfaction guaranteed

WEAVER APIARIES, NAVASOTA, TEXAS

JUST NEWS

(Continued from page 384)

of Lee Stewart of Newport, Indiana. It was Lee's idea of a birthday celebration and what a celebration it has been! The complete program will appear in this journal in the July issue. Speakers of national renown have already been chosen. A gadget show is to be held along with the Round-up and beekeepers throughout the United States are invited to bring any pet contrivances and place them on display. There will also be a display of honey baked goods and prizes for same. Killion has also promised to have one of his comb honey apiaries located conveniently near, showing his Air Way system of comb honey. For those who come early for Friday evening, August 22nd, a luncheon is to be held in the Hotel France followed by moving pictures shown by Huber Root.

• • •

The Delaware State Beekeepers will meet on Saturday, June 7, at the apiary of Chas. H. Liedlich on Iron Hill near Newark. President Chas A. Peet will preside at the meeting. Edwin J. Anderson, Specialist in Apiculture, Pennsylvania State College, will be present to lead a discussion of general beekeeping problems and to answer questions. The honey flow from tulip poplar should be on at this time and the bees ought to be easy to handle if a few hives are opened. The meeting will begin at 2:15 P. M., D.S.T. and continue until 4:30 P. M.

• • •

Georgia has materially strengthened her apiary inspection service under J. H. Girardeau, State Entomologist, who succeeded M. S. Yeomans, March 25th. The new head of the Georgia Department of Entomology, a beekeeper himself and actively associated with the industry in Georgia for years, is determined to make Georgia's certification as perfect as possible and to see Georgia the leader in bee-disease control.

• • •

The Sixth Annual **Tri-County Field Meet** will be held at Delphos, Ohio, June 29.

• • •

From a recent issue of "The Lima News" published in Lima, Ohio, we note that the Sioux City Honey Association of Sioux City, Iowa, is establishing a honey packing plant in Lima. Operations will begin very soon.

KELLEY—"The Bee Man"

BEES

Bee shipments will start promptly this year from our own Louisiana Apiaries.

2-lb. swarms with queens $2.00
3-lb. swarms with queens $2.50

Write for circular and discounts on 10 or more swarms. Queens—young and purely mated mailed daily from Paducah.

SELECT LAYING ITALIAN QUEENS
Three for $1.00—35c each.

The Walter T. Kelley Co., Paducah, Kentucky

Queens - Bernell's Selected Italian Strain

3 QUEENS,	$ 1.00	FOR AIR MAIL
10 QUEENS,	3.00	Add 3 cents, EACH
100 QUEENS,	29.00	QUEEN.

R. L. BERNELL, Rt. 4, Box 270, New Orleans, La.

Mountain Gray Queens

FOR JUNE

Large fine young well-bred gray queens that are a pleasure to work with, and, too, the bees are dependable for honey-gathering. We are selling more bees than ever in one season. Service and bees guaranteed. No disease. Queens, only 50 cents each.

BOLLING BEE CO., Bolling, Ala.

Three-banded Italian Bees and Queens

There is no use in tolerating those old queens in your hives now when a few cents spent here, will double and treble your honey yield. My queens and service are all any one can ask.

Hundreds of customers testify to this fact every season.

So place that order with a firm that has your business at heart.

Queens, 35 cents each, or 3 for $1.00
2-lb. package with queen, ...$1.60
3-lb. package with queen, ... 2.10
No charge for clipping queens.

A. E. Shaw, Shannon, Miss.

ITPAYSTO REQUEEN

Three-band Italians lead the field. 1 to 25, 50c; 25 to 100, 45c; 100 up 40c.

J. M. CUTTS & SONS
Rt. 1, Montgomery, Ala.

Fresh from Our Yards

Immediate shipment

Italian Queens, ...$0.40
2-lb. pkg. bees with queen, ...$1.75
3-lb. pkg. bees with queen, ... 2.20

No delay: Bees will be shipped same day order is received.

Our regular discounts will be allowed.

Citronelle Bee Co., Citronelle, Ala.

THRIFTY BEES

Untested queens, 40c each; 100 for $35.00.

2 lb. combless packages with untested queens, $1.40 each; 12 or more, $1.30 each.

3 lb. combless packages with untested queens, $1.80 each; 12 or more, $1.70 each.

WE CAN MAKE PROMPT SHIPMENT

We guarantee full weight packages, safe arrival, and satisfaction.

Forty-nine years' experience assures you of the finest THRIFTY three-banded Italian stock.

W. J. Forehand & Sons
Fort Deposit, Ala.
Breeders Since 1892

Bees Queens

Light or Leather-Colored Italians

Quality and service guaranteed. We ship full weight packages and young queens, furnish health certificate with each shipment. The season is advanced, order **NOW.**

—PRICES—

2-lb. pkg. with queen,	$1.40
3-lb. pkg. with queen,	1.90
Quees, each	.40

(Prices F.O.B. payable in U. S. Funds)

THE IDEAL APIARIES
Estill, South Carolina

Beekeepers' Best Friend

There is a national organization that is working hard every day to increase consumer interest in honey. Much is being accomplished along this line. For more detailed information see **American Honey Institute News Notes** (see page 385 for June) each month written by Mrs. Harriett M. Grace, Director of Institute office.

Help yourself by helping the Institute.

Mail remittances to
American Honey Institute, Madison, Wis.

May Prices Reduced

on Imported Strain Italian PACKAGE BEES

After May 10th

2-lb. pkg. with queen,	$1.60 each
3-lb. pkg. with queen	2.10 each
Loose queen pkg. add	.15 each
Nuclei with one frame add	.30 each
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Gentle, Prolific and Vigorous

"They Produce"

More surplus and are conservative of stores for winter.

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Eighty-five Per Cent of Nectar Lost

Do you know that eighty-five per cent of the nectar is not gathered each year? Have you what you need for a maximum honey crop? Get our quotation on your season's needs. We sell at factory prices and save you freight. Orders shipped the day they are received. Special discounts on your quantity purchases.

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35c each, or 3 for $1.00

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Bright 3-Band Italian Bees and Queens of Highest Quality. Purely mated. Safe arrival and satisfaction guaranteed. Packages express collect. Health certificate furnished with each shipment.

Mail your orders TODAY and be among our MANY SATISFIED customers.

Unt. Queens,	35c ea. or 3 for $1.00
Tested Queen,	.70
2-lb. pkg. with Queen,	1.50
3-lb. pkg. with Queen,	2.00

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Ramer, Ala. **Route 2**

Sullivan, Wright & Company

BREEDERS OF

Italian Bees and Queens

—PRICES—

2-lb. pkg. with queen,	$1.50
3-lb. pkg. with queen,	2.00

Queens, 1-10, 40c each
10 or more, 3 for $1.00

Good Italian stock. Prompt, courteous, efficient service. Satisfaction guaranteed.

SULLIVAN, WRIGHT & CO.
Gilbertown, Alabama

—Genuine Italian Bees and Queens—

30c—QUEENS—30c

2-lb. pkg. with queen,	$1.35
3-lb. pkg. with queen,	1.70

Satisfaction Guaranteed

LUCEDALE APIARIES
Lucedale, Miss.

PRICES REDUCED

	1-5	5-10	10-up
2 lbs.	$1.45	$1.40	$1.36
3 lbs.	1.79	1.74	1.69
Queens	.38	.34	.32

Three-banded Italians. Live delivery.

Health Certificate. Satisfaction.

SUNKIST BEE CO.
Montegut, P.O., La. Telegraph: Houma, La.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS

Genuine Ladylike
Mountain Grey

Caucasian Bees and Queens

for June delivery

Select untested queens, 50c each

Two-pound packages with select untested queens, $2.45 each

Three-pound packages with select untested queens, $3.15 each

WE WILL SHIP NO BEES OR QUEENS AFTER JUNE 28th this season, but will be getting ready for a bigger business with the best in quality for the 1942 season.

Caucasian Apiaries

Home of Mountain Grey Bees
Brooklyn Ala.

Reliable Service

Reliable Package Bees and Queens

Three-band Italian Bees and Queens

Price list Via Express Collect

	2-lb. pkgs.	3-lb. pkgs.	4-lb. pkgs.	5-lb. pkgs.	Queens
1 to 24	$1.90	$2.50	$3.10	$3.70	$ .50
25 to 99	1.75	2.30	2.85	3.40	.45
10 up	1.60	2.10	2.60	3.10	.40

Tested Queens twice the price of Untested.

Payable in U. S. Funds.

No charge for clipping Queens.

W. E. Harrell
Hayneville, Alabama

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